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ABSTRACT

This document contains the proceedings of the fifth of a series of seminars developed by the Colombo Plan Bureau to serve as a catalyst in the planning and development of skilled manpower in the Colombo region of south and southeast Asia. The seminars resulted from a realization that the shortage of technical and skilled manpower in the area is mainly due to the inadequacy of existing facilities and the lack of a well-planned program to meet manpower needs. Some 52 persons representing governmental agencies, the university, technical education, management development institutions, industry, and foreign experts attended the seminar. Discussions at the meetings centered around four working papers: (1) "The Basic Elements in a National Plan for Vocational and Technical Training" by G. Espinosa, (2) "Manpower Requirements in Planning Vocational and Technical Training in Nepal" by K. Tuladhar, and (3) "The Role of Industry as a User and Producer of Technically Trained Personnel in Nepal" by J. Shrestha. Texts of the main speeches, reactionary statements, names of participants, addresses given by other participants, and background information providing the framework for the seminar are included. (Author/SN)

ED 080707

A COLOMBO PLAN SEMINAR ON

National Planning of Vocational and Technical Training

KATHMANDU, NEPAL - JUNE 1972

LT 020 921

COLOMBO PLAN BUREAU

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THE COLOMBO PLAN

The Colombo Plan was conceived at a meeting of the Commonwealth Foreign Ministers in Colombo in January, 1950. Its aim has been the economic and social development of South and South-East Asia through the co-operative efforts of the countries in the region assisted by other member countries.

All Colombo Plan aid is negotiated bilaterally. The receiving country determines its needs and begins negotiations with a donor country on the best way to fulfil them. From the beginning, co-operation and equality among members was emphasised.

The 26 member countries of the Colombo Plan are:

Within the Region: Afghanistan, Bangladesh, Bhutan, Burma, Fiji, India, Indonesia, Iran, Khmer Republic, Republic of Korea, Laos, Malaysia, Republic of Maldives, Nepal, Pakistan, the Philippines, Singapore, Sri Lanka, Thailand and Republic of Vietnam.

Outside the Region: Australia, Britain, Canada, Japan, New Zealand and the United States of America.

There are three focal points around which the Colombo Plan revolves:

(1) *The Consultative Committee* is the top policy making body consisting of ministers of member governments. This Committee meets each year in one of the member countries. Its task is to survey the development of the region, assess the needs, and to examine how international co-operation—in the twin forms of capital aid and technical assistance—can help to fill the gaps in national resources and accelerate the pace of development.

(2) *The Colombo Plan Council* consists of the representatives of all the Colombo Plan countries most of which have diplomatic missions in Colombo. The Council, which meets regularly in Colombo, does not deal with questions of capital aid. Its task is limited to promoting and co-ordinating technical assistance in the region.

(3) *The Colombo Plan Bureau* is located in Colombo and has four main functions: (i) serving as a participating body at Consultative Committee Meetings and acting in an advisory capacity for the Meetings, (ii) recording all the technical assistance given to the countries of the region under the Plan, (iii) promoting intra-regional technician training, (iv) disseminating information on the Plan as a whole.

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SEMINAR

on

NATIONAL PLANNING OF VOCATIONAL AND TECHNICAL TRAINING

Kathmandu June 1972

(Summary Record of Proceedings)

COLOMBO PLAN BUREAU
12 Melbourne Avenue
Colombo 4, Sri Lanka

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I N T R O D U C T I O N

In the past sufficiently high priority had not been given to vocational and technical training in the national plans of most countries in the Colombo Plan region. This was perhaps due to a lack of appreciation of the importance and value of trained manpower. Recent studies have clearly shown that the economic return on expenditure in developing human resources was not less than that on capital and material investments.

Against this background, the countries of the Colombo Plan region are becoming increasingly aware of the importance of giving high priority to vocational and technical training in their national development plans. It is also recognised that a prerequisite for preparing a comprehensive and realistic national plan for vocational and technical training is the formulation of a national economic development plan specifying the broad objectives to be achieved in the sphere of economic and social development. Such a plan must be based on a comprehensive manpower survey of needs and resources.

The shortage of technical and skilled manpower at all levels in many of these countries is largely attributable to the inadequacy of existing training facilities including teachers and the lack of well planned and properly organised training programmes to meet the current and anticipated requirements of development planning. The situation has, however, changed considerably during the past few years; and in many countries of the region steps for developing vocational and technical training programmes on sound and systematic lines now form part of overall national development plans.

The Colombo Plan Bureau is seeking to serve as a catalyst in this process of change by means of a series of seminars that aim at emphasising the importance of planning in developing skilled manpower. The first, second, third and fourth in this series on the theme 'National Planning of Vocational and Technical Training' sponsored by the Colombo Plan Bureau were held in Pakistan (July 1969), Indonesia (December 1969), Malaysia (June 1970) and Republic of Korea (August 1970) respectively.

The fifth seminar in this series was held in Nepal at the Hotel Soaltee Oberoi, Kathmandu from 12 to 15 June 1972 and was jointly sponsored by His Majesty's Government of Nepal and the Colombo Plan Bureau.

The seminar was inaugurated by the Honourable Gyanendra Bahadur Karki, Minister for Foreign Affairs and Education. Brigadier General A.B. Connelly, Director of the Colombo Plan Bureau and Mr. S.B. Shakya, Acting Rector, Tribhuvan University, were the Co-Chairmen of the seminar. The seminar closed with an Address by the Honourable Krishna Raj Aryal, Minister of State for Education.

The seminar was attended by 52 participants representing government agencies, the university, technical education, management development institutions and industry and including a few foreign experts working in the country. The main objectives of the Seminar were:

(1) To focus attention on the urgent need for a planned and co-ordinated approach to vocational and technical training at the national level;

(2) To provide a forum for a frank exchange of views amongst those who are concerned with vocational and technical training at various levels;

(3) To explore and define approaches for effective communication and co-ordination between various agencies responsible for vocational and technical training in the different sectors of the economy;

(4) To identify the main problems that arise in the implementation of vocational and technical training programmes and discuss possible solutions within the framework of government policies;

(5) To highlight the important role that national and international organisations can play in the planning and implementation of vocational and technical training projects in the country.

Discussions at the seminar centred around four Working Papers, after the presentation of which Panel Speakers commented on each of them. After these presentations, the participants divided into three discussion groups for more detailed discussion of twelve questions arising from the Working Papers. The proceedings of the seminar were conducted in English.

The seminar recommended, inter alia, the preparation of a perspective plan for vocational and technical education and training and the early establishment of a high level National Advisory Council for Vocational and Technical Education and Training to advise His Majesty's Government on all matters relating to vocational and technical education and training in the country. The draft of the Final Statement was prepared by a Drafting Committee consisting of Mr. S.B. Shakya (Chairman), Mr. Gregorio P. Espinosa, Mr. P.N. Jha, Mr. S. Mahendra, Mr. M.S. Rana, Mr. Francis Sauer and Mr. K.R. Tuladhar.

ACKNOWLEDGEMENTS

The Colombo Plan Bureau wishes to place on record its sincere appreciation of the co-operation it received from a number of persons who contributed in so many ways to make the seminar a success. Particular thanks are due to:

(1) The Honourable Gyanendra Bahadur Karki, Minister for Foreign Affairs and Education, for the Inaugural Address.

(2) The Honourable Krishna Raj Aryal, Minister of State for Education, for the Closing Address.

(3) Dr. Harka Gurung, Member, National Planning Commission, for his great personal interest and encouragement.

(4) Mr. S.B. Shakya, Acting Rector, Tribhuvan University, for serving as Co-Chairman.

(5) The officers of the Human Resources Division for the excellent arrangements made for the seminar.

(6) The authors of Working Papers and the Panel Speakers for the contributions they made and taking an active part in the proceedings.

(7) The management of Hotel Soaltee Oberoi for its co-operation in providing the physical facilities for the seminar.

(8) All the participants for taking an active interest in the proceedings of the seminar.

SEMINAR PROGRAMME

Monday, 12 June

8.30 a.m. Registration of Participants

9.00 a.m. INAUGURAL SESSION

Opening Address by Dr. Harka B. Gurung, Member, National Planning Commission

Welcome Address by Brigadier General A.B. Connelly, Director of the Colombo Plan Bureau

Inaugural Address by The Honourable Gyanendra Bahadur Karki, Minister for Foreign Affairs and Education

(Reception)

10.00 a.m. SESSION ONE

"The Basic Elements in a National Plan for Vocational and Technical Training"

By Mr. Gregorio P. Espinosa, Adviser on Intra-Regional Training, Colombo Plan Bureau

Panel Comments and Discussion

11.30 a.m. "Manpower Requirements in Planning Vocational and Technical Training in Nepal"

By Mr. H.N. Thakur, Chief, Human Resources Division, National Planning Commission Secretariat

Panel Comments and Discussion

(Lunch)

2.30 p.m. Group Discussions

Tuesday, 13 June

9.00 a.m. SESSION TWO

"Problems in Planning Vocational and Technical Training in Nepal"

By Mr. K.R. Tuladhar, Principal, Nepal Engineering Institute

Tuesday, 13 June (Contd.)

Panel Comments and Discussion

(Coffee)

10.30 a.m. "The Role of Industry as a User and Producer of Technically Trained Personnel in Nepal"
By Mr. J.B. Shrestha, Chairman, Biratnagar Jute Mills

Panel Comments and Discussion

(Lunch)

2.00 p.m. Group Discussions

Wednesday, 14 June

9.00 a.m. SESSION THREE

Presentation of Group Reports

Discussion on Group Reports

10.00 a.m. to 5.00 p.m. Meeting of the Drafting Committee

Thursday, 15 June

9.00 a.m. CONCLUDING SESSION

Consideration of Final Statement

Closing Speeches

SOCIAL ENGAGEMENTS

Monday, 12 June 1972

Lunch by Brigadier General A.B. Connelly, Director, Colombo Plan Bureau
At Hotel Soaltee Oberoi .. 1.00 p.m.

Dinner by The Hon. Gyanendra Bahadur Karki, Minister for Foreign Affairs & Education and Mrs. Karki
At Belaity Baithak, Singha Durbar .. 7.30 p.m.

Tuesday, 13 June 1972

Lunch by Dr. Harka B. Gurung, Member, National Planning Commission
At Hotel Soaltee Oberoi .. 1.00 p.m.

Wednesday, 14 June 1972

Reception by Dr. Trailokya Nath Upraity, Vice-Chancellor, Tribhuvan University
At Guest House No.1, Tripureswor .. 6.30 p.m.

LIST OF PARTICIPANTS

Co-Chairmen

Brigadier General A.B. Connelly - Director, Colombo Plan Bureau.

Mr. S.B. Shakya - Acting Rector, Tribhuvan University, Kathmandu.

Authors of Working Papers

Mr. Gregorio P. Espinosa - Adviser on Intra-Regional Training, Colombo Plan Bureau.

Mr. J.B. Shrestha - Chairman, Biratnagar Jute Mills, Biratnagar.

Mr. H.N. Thakur - Chief, Human Resources Division, National Planning Commission Secretariat, Kathmandu.

Mr. K.R. Tuladhar - Principal, Nepal Engineering Institute, Pulchouk, Lalitpur.

Panel Speakers

Dr. D.D. Bhatt - Prof. & Head of the Department of Botany, Tri-Chandra College, Kathmandu.

Mr. P.G. Caswell - ILO Project Manager, Nepal Engineering Institute, Pulchouk, Lalitpur.

Mr. G.S. Glaister - Project Manager, Road Feasibility Study, Kupondole, Lalitpur.

Mr. B.B. Pradhan - Secretary, Ministry of Finance, Singha Durbar.

Dr. K.B. Rajbhandary - Principal, Agriculture College, Pulchouk, Lalitpur.

Mr. Pasupati Shamshere J.B. Rana - Executive Director, C.E.D.A., Kirtipur, Kathmandu.

Panel Speakers (Contd.)

Dr. Narayan K. Shah	- Chief of Epidemiology, Department of Health Services, Singha Durbar, Kathmandu.
Mr. T.N. Shrestha	- Member, Nepal Chamber of Commerce & Industry, Meera Home, Khichapokhari, Kathmandu.
Dr. Parasar N. Suwal	- Principal, Ananda Kuti College, Kathmandu.

Participants

Mr. Radheshyam S. Agrawal	- Member of the Working Committee, Federation of N.C.C.I., Meera Home, Khichapokhari, Kathmandu.
Mr. Werner Baumer	- Principal, BYS/Mechanical Training Centre, Balaju, Kathmandu.
Mr. Lekh Nath Belbase	- Research Officer, National Education Committee, Singha Durbar, Kathmandu.
Mr. A.S. Bhasin	- Planning & Research Officer, Indian Co-operation Mission, Kathmandu.
Mr. Erhard Decking	- Nepal-German Technical Training Institute.
Mr. Bhogendra P. Dhakal	- Section Officer, Department of Industries, Jawalakhel.
Dr. Ann Domidian	- Acting Chief, Education Division, US AID/N., Kathmandu.
Mr. Michael Furst	- Vocational Agricultural Education Specialist, Education Division, US AID/N., Rabi Bhawan, Kathmandu.
Mr. Parmeshwar N. Jha	- Section Officer, Human Resources Division, National Planning Commission Secretariat, Singha Durbar, Kathmandu.

Mr. Komal Shanker Joshi	- Public Relation Officer, Butwal Technical Institute, Butwal.
Mr. Swayambhu Joshi	- Research Officer, Federation of N.C.C.I., Kathmandu.
Mr. Madhab P. Khanal	- Section Officer, Department of Tourism, Ramshah Path, Kathmandu.
Dr. K.C. Leela Devi	- Lecturer, College of Education, Kirtipur, Kathmandu.
Mr. L.B. Manandhar	- Vice-Principal, Mechanical Training Centre, Balaju, Kathmandu.
Miss Bimala Maskey	- Senior Tutor, Nurses Training School, Bir Hospital, Kathmandu.
Mr. Laxman Prasad Nepal	- Director, Technical Training Institute, Thapathali, Kathmandu.
Mr. Purushottam N. Pradhan	- Vocational Education Co-ordinator, Curriculum & Text-Book Division, Ministry of Education, Singha Durbar, Kathmandu.
Mr. Prakash A. Raj	- Hydrologist, National Planning Commission Secretariat, Singha Durbar, Kathmandu.
Mr. Madhukar Shumshere J.B. Rana	- Senior Research & Training Officer, C.E.D.A., Kirtipur, Kathmandu.
Mr. Shanker Jung Rana	- Acting Vice-Principal, NVTC, Sano Thimi, Bhaktapur.
Mr. T. Sakiyama	- UN/FAO Agr. Economist, Agri.-Economic Section, Ministry of Food & Agriculture, Singha Durbar, Kathmandu.
Mr. Francis Sauer	- Training Co-ordinator, Butwal Technical Institute, Butwal.
Mr. B.P. Shah	- Suptd. Engineer, Roads Department, Babar Mahal, Kathmandu.

Mr. Bharati Prasad Sharma	- Lecturer, Nepal Engineering Institute, Pulchouk, Lalitpur.
Dr. Niranjan P. Sharma	- Medical Officer, Mahendra Adarsha Chikitsalaya, Chitwan.
Mr. Ram Prasad Sharma	- Acting Chief Executive, Nepal Telecommunication Board, Putali Bagaicha, Singha Durbar, Kathmandu.
Mr. Suresh Raj Sharma	- Lecturer, Department of Chemistry, Tribhuvan University, Kirtipur, Kathmandu.
Mr. Gauri Bhakta Shrestha	- Senior Engineer, Department of Housing & Physical Planning, Babar Mahal, Kathmandu.
Mr. Prem Prakash Shrestha	- Deputy General Manager, Nepal Industrial Development Corp., Kathmandu.
Miss Shashi Maya Shrestha	- Acting Vocational Education Co-ordinator, National Vocational Training Center, Sano Thimi, Bhaktapur.
Mr. Subran Lal Shrestha	- Lecturer, Agriculture College, Pulchouk, Lalitpur.
Mr. Akal Bahadur Singh	- Lab. Technician, Nepal Engineering Institute, Pulchouk, Lalitpur.
Mrs. Meera S. Singh	- Section Officer, Human Resources Division, National Planning Commission Secretariat, Singha Durbar, Kathmandu.
Mr. K.C. Som Bahadur	- Section Officer, Department of Labour, Jawalakhel, Lalitpur.
Mr. P. Subba	- Section Officer, Human Resources Division, National Planning Commission Secretariat, Singha Durbar, Kathmandu.
Mr. Bir Bahadur Thapa	- Administrator, Training School, R.N.A.C., Kathmandu.

Mr. Indu Shumshere Thapa	- Chief of Technical Training Section, Department of Cottage Industries, Tripureswor, Kathmandu.
Dr. Damodar Prasad Upadhyay	- Medical Superintendent, Auxiliary Health Worker School, Maharajgunj, Kathmandu.

His Majesty's Government Officers

Mr. H.N. Thakur	- Chief	Human Resources Division, National Planning Commission Secretariat.
Mr. Parmeshwar N. Jha	- Section Officer	
Mrs. Meera S. Singh	- Section Officer	
Mr. P. Subba	- Section Officer	

Colombo Plan Bureau Officers

Brigadier General A.B. Connelly	- Director
Mr. Gregorio P. Espinosa	- Adviser on Intra-Regional Training
Mr. S. Mahendra	- Special Assistant to the Director

INAUGURAL SESSION

OPENING ADDRESS

Development Aspects of Vocational and Technical Education in Nepal

By

Dr. Harka Gurung
Member
National Planning Commission

The appreciation of human resource as the strategic element in economic development is not a new idea. Adam Smith noted in 1776 that the basis of the national wealth were the skill, dexterity and competence of individuals. In spite of the Ricardian diversion of giving primacy to capital resources, the present development strategy gives increasing emphasis to investment in human resources. Education and training are taken as important means of enskilling the population.

Nepal is a good example of a population exporting country. Over half a million are reported in India, Bhutan and Sikkim, while the Nepalese census reports a seasonal migration of 300,000 persons each year. This large-scale mobility of population is not only due to the low level of development in the country. Any commodity to be exportable must be competitive --- refined and expensive or raw and cheap. It is obvious that Nepalese labour force has been able to maintain its market for its cheap qualities. Indeed, the country exports cheap raw labour while it has to import semi-skilled and skilled manpower to meet its development needs. This traditional process must be checked.

The demand for skilled workers will accentuate with our present development trend. The Third Plan (1965-70) outlay of Rs.17 crore exceeded the First Plan (1956-61) by six times while the Fourth Plan (1970-75) investment outlay is twice that of the Third Plan. While successive plans have emphasised infrastructural development, education growth has been rapid. But in 1970, of the 17,449 students in colleges and training institutions, only 6.1 per cent were reported in vocational and technical subjects. The result of an immense bulge in the liberal arts graduates was indicated by a survey in 1967 whereby unemployment of liberal arts graduates increased from 27 per cent in 1964 to 39 per cent in 1965 and 47 per cent in 1966. This was a veritable waste of scarce resources on the one hand while the country experienced shortage of skilled workers for increased development activities.

Two factors demand an urgent need of increasing the output of middle level technicians. First, the output of higher level technical personnel with foreign assistance has not been matched by output of middle level technicians within the country and this has led to an imbalance in the ratio among high and mid-level technicians. A highly skilled professional can be more effective with supporting personnel.

Secondly, in Nepal's experience it is much more difficult to deploy and retain high level manpower in rural areas. Kathmandu has a high degree of graduates: 60 per cent doctors and 77 per cent of engineers and 60 per cent of country's graduates are concentrated in Kathmandu valley. The answer to this regional imbalance may be to make available middle level technicians in areas of pioneer development. They may better fit the absorptive capacity of less developed regions.

The need for training skilled workers within the country has been realised for a long time and various training centres were established particularly over the last decade. The training institutions established by various government agencies may be likened to ad hoc arrangements to meet their own requirements. One recurrent theme comes up in the discussion of technical training in Nepal: the obvious lack of co-ordination among the institutions. Co-ordination, however, is not, as many assume, a question of attitude. Co-ordination to be effective must be built within the organisation structure. This, the new Education Plan has visualised. The new Education Plan proposes to bring all technical, vocational, general education and training programmes under an integrated structure. There is obvious emphasis on the expansion of technical and vocational education particularly of the middle level.

It is necessary that we expand technical and vocational education. Realising the immense need for technical personnel, of the proposed budget increase in the next fiscal year, over 90 per cent of the increase will be for vocational and technical education. The additional resource allocation will contribute to increased enrolment of students in technical subjects; nearly a quarter of the total higher education enrolment.

However, increase in the in-take of technical institutions alone is not enough. The more important aspect is the output and their retention in the relevant sectors. Attrition may be checked by providing financial and professional incentives. A modernising economy has to give priority to technical manpower if it is to benefit from technological innovations. Again, middle level technicians should be given opportunity for upgrading professionally. The curriculum development under the new Education Plan is geared in this direction.

Finally, we admit that the new Education Plan does not propose to be the panacea for all the ills. The impending transition phase will be particularly difficult with the debate on theoretical versus practical bias. But we do hope we will assert the development bias. And most important, if we do not enskill ourselves according to the times, the pace of development of the country will not only be slow but whatever development we undertake will bypass the general population posing a bigger question of income distribution.

WELCOME ADDRESS

By

Brigadier General A.B. Connelly
Director of the Colombo Plan Bureau

It gives me a great deal of pleasure to welcome you to this National Seminar on "National Planning of Vocational and Technical Training", jointly sponsored by His Majesty's Government of Nepal and the Colombo Plan Bureau. I should like to reciprocate the warmth with which we have been welcomed to Nepal. I have found it quite easy to feel at home here. My home used to be in an agricultural community in the foothills of the Canadian Rocky Mountains. We had more highly industrialised neighbours to the South and East and our community progressed through small industries based on local resources. I feel among friends since I have served in all three of the sectors represented here, education, government and industry. Also in World War II, I had the privilege of being associated with the famous Gurkhas from Nepal.

From its inception it has been the objective of the Colombo Plan to help the people of South and South-East Asia to help themselves. The Bureau has been given the task of promoting training within the region. Through a series of national seminars it focuses the need for a planned and co-ordinated approach to vocational and technical training and at the same time makes available information as to what facilities are offered by regional countries. Every second year the Bureau convenes a regional colloquium when representatives of all member countries, regional and non-regional, are invited to discuss their problems and ideas on technical training. The emphasis has been on the training of technicians at the middle level, that is, between the professional engineer and the craftsman.

This is the eleventh national seminar that has been held by the Bureau in co-operation with one of the countries of the Colombo Plan region. Its object is to draw attention to the national plan for vocational and technical training, to provide a forum for the frank exchange of views, to explore approaches for communication and co-ordination among the various agencies concerned with technical training, try to obtain solutions for their problems, and to find a possible role that national and international agencies might play in the planning and implementation of technical training projects.

I have read with interest the Fourth Plan of the National Planning Commission as well as the National Education Plan for 1971-76. These plans point out the great imbalance between graduate engineers, technicians and craftsmen. The number of graduate engineers is greater than the combined force of technicians and craftsmen, whereas, particularly in a developing country, the builders and operators should far outnumber the designers. The Fourth Plan shows the need for practical technicians and craftsmen in all the various aspects of development;

in the building and operation of the infrastructure, transport, power, telecommunications; in agriculture and in the development of natural resources.

It is encouraging to see that the planners have recognised this deficiency and are striving to remedy the imbalance. The ways and means will probably form part of our discussions in the next few days. Might I suggest, therefore, a few points that we could consider.

Vocational subjects are being included in the primary and secondary schools to familiarise the students with various trades. Is sufficient stress being laid on mathematics and science to enable competent students to progress at least to the middle level of technician?

Is there a career guidance system? This need not be a separate organisation. Are teachers informed of the projected job opportunities and what characteristics in a student might fit him for a particular line of work?

In the rapidly changing world of technology no one can stand still with impunity. Should provision be made for continuing education, for refresher courses and extension courses as well as opportunities for upgrading?

Can in-job training be arranged without encouraging migration into the cities?

Finally, has the technician been given sufficient status in the community? You have only to look at the statistics given in the Fourth Plan to realise the prestige given to a degree, any degree, as evident from the number of liberal arts graduates. In the East it has been understood that a degree was the gateway to a white-collar job. Possibly many of those who find no such employment available although not qualified to undertake the higher mathematics of an engineering degree might have made good technicians if properly directed or conditioned.

From my experience of several years in the construction business I might point out that in the Western world the important man on a construction job is the superintendent. The engineer makes the design but it is the superintendent who makes the money for the contractor by his knowledge of the efficient use of machinery, the procurement of materials and the employment of the labour force. He is adequately rewarded by pay and prestige. He has his own office with his name on the door.

It is essential that the technician be recognised for the important part he plays in development. He should be paid accordingly and given pleasant working conditions. He should be encouraged to take a pride in his accomplishment.

What I have said applies even more to the teachers of technicians. It is essential that we attract more able men into that profession. The need has been known for many years. Out of the Colombo Plan Colloquium

in 1969 came the recommendation that the Colombo Plan establish a Regional Centre for the training of teachers of technicians. We have sought agreement and support through two feasibility studies, and a number of Council sessions. The matter will be referred back to the Colombo Plan Consultative Committee in New Delhi in October of this year for an expected final decision.

I must express the appreciation of the Colombo Plan Bureau to His Majesty's Government of Nepal for the excellent co-operation it has given as co-sponsor for the seminar.

We are greatly honoured by the presence of the Honourable Gynendra Bahadur Karki, Minister for Foreign Affairs and Education to inaugurate the seminar. This demonstrates the significance that His Majesty's Government attaches to the development of vocational and technical training.

We are grateful to Dr. Harka Gurung, Member of the National Planning Commission, under whose able guidance the preparatory work for the Seminar has been done, with valuable advice from Mr. S.B. Shakya, Acting Rector, Tribhuvan University. We particularly appreciate all the hard work that has been put in during the past few weeks by Mr. H.N. Thakur, Chief of the Human Resources Division and his two able lieutenants, Mr. P.N. Jha and Mr. P. Subba who along with Mrs. Meera Singh have borne the brunt of it to make this Seminar possible.

We thank the consultants who have taken so much trouble to prepare papers.

In conclusion, I wish to thank the Ministers, members of the Diplomatic Corps and honoured guests for attending this inaugural ceremony and I wish the participants in the Seminar an interesting and valuable meeting.

INAUGURAL ADDRESS

By

The Honourable Gyanendra Bahadur Karki
Minister for Foreign Affairs & Education

This Seminar on "National Planning of Vocational and Technical Training" is being held at a very appropriate time. His Majesty's Government has since 1971 embarked upon a comprehensive plan for reforming the educational system of the country. The Plan, as you are aware, lays great stress on vocational education at the school level, and expansion of technical education at higher levels. The country is facing a shortage of technicians at all levels, especially lower and middle level technicians. Vocational education will relieve this shortage to a great extent.

Vocational education has been made compulsory in the secondary schools. At present we are offering vocational instruction in a limited number of subjects. More options will be provided in future. The problems of vocational education in school are the shortage of well-trained teachers and lack of text-books and materials. We are running the National Vocational Training Centre at Sanothimi as a full-fledged institution solely devoted to training vocational teachers. Also we would like to enlist persons completing technical and vocational training in various related institutes for this purpose.

We want to see vocational education in secondary schools achieve these objectives: (a) impart in the students respect for manual work, (b) provide such skills to the terminal students, which can be used to engage in a gainful job on their own or as employees, (c) provide a base for those students who are able and willing to pursue higher training in their respective vocations. It is my firm belief that the secondary schools will be turning out students with a basic skill thus making them productive citizens.

Now let me say a few words regarding the training programmes at higher levels. Various technical training programmes are now being run by government departments and institutes. The fields of training cover teacher training, agriculture, land survey, engineering, nursing, midwifery, medical practice, forestry, postal system, telephone operators, co-operatives, and public administration. From July this year most of the training centres will be reorganised as institutes under Tribhuvan University with the implicit aim of producing basic, middle and higher level technicians required for implementing the development plans of the country. The newly constituted institutes are those of Agriculture and Veterinary Science, Forestry, Medicine, Applied Science and Technology, Education, and Engineering. This measure, we believe, will raise the status of technical and vocational education by giving junior level technicians access to higher studies leading to certificate, diploma and degree in different technical subjects. At the same time we are confident that this education at institute level will retain their practical component, which is the heart of technical education.

I would like to point out that the real purpose of vocational education and technical training is still not being fully appreciated by those who are possessed with the traditional concept of education. They generally think of education in terms of preparation for white-collar jobs. Our present National Plan of Education is a clear departure from the old concept of education in so far as it is development oriented. The whole Plan has been cast to meet the growing developmental needs of the country. The educational system that we had till yesterday had virtually no place for meaningful vocational and technical training which has resulted in the dearth of trained and skilled manpower necessary for planned development to fit in with the overall development of the country in pursuance of the call for development made by His Majesty King Birendra Bir Bikram Shah Deva. I am confident that with the right emphasis on vocational education and technical training our Plan for National Education will produce self-reliant and capable citizens committed to the ideals of the Development Decade.

With these few words, I take this opportunity of declaring open this Seminar. I hope the participants of this Seminar will be able to come out with concrete suggestions for making vocational education more meaningful and helpful in the development of the country.

SESSION ONE

Chairman: Dr. Harka Gurung

The Basic Elements in a National Plan for Vocational and Technical Training

By

Mr. Gregorio P. Espinosa
Adviser on Intra-Regional Training
Colombo Plan Bureau

It is generally accepted that the main hope for the developing countries, which are trying to accomplish in a matter of decades the economic and social advances that took centuries in the developed countries, lies in the optimum development of their human resources. To achieve this, major changes and improvements must be made in the quantity, quality, focus and efficiency of educational and training programmes, in order to ensure that the right kinds of people are trained in the various professions and skills to meet current and future labour market and social requirements. In this connection, the importance of planning vocational and technical training will be obvious. However, vocational and technical training cannot be viewed in a vacuum. It is closely related to a country's stage of economic and social development and to its economic and social needs.

Should there be a Plan?

This is a basic question. While there is general agreement on the need to plan economic and social development and also for manpower and educational planning, relatively little has been done to establish systematic vocational and technical training plans and implement them.

In spite of the efforts made in a number of developing countries to provide vocational and technical training in some form or other to meet the needs, the results achieved have been far from satisfactory as regards matching the supply of skilled manpower with the demand. A number of problems call for urgent solution in this regard.

It is essential, therefore, that vocational and technical training should be planned in a comprehensive and systematic manner with the ultimate aim of achieving optimum balance between quantity and quality of training, making the best use of limited resources and achieving the desired results in the shortest possible time.

Long-Term Economic Plan

An essential prerequisite for preparing a comprehensive and realistic national plan for vocational and technical training is the preparation of a long-term national plan for economic development specify-

ing the broad objectives to be achieved and based on a comprehensive manpower survey. Further, if a plan for vocational and technical training is to be effective it must be drawn up in close co-ordination with planning in relevant fields such as education, manpower, social and economic development.

I would like to refer here to the Fourth Plan (1970-1975) prepared by His Majesty's Government of Nepal. The Plan gives estimates of manpower requirements at three levels and infers that:

> "The number of lower and middle-level trained persons is not adequate to help the higher level personnel function most effectively. This shows the need to put greater emphasis on the training of middle and lower level manpower. In the training centres of the country, duplication in training subjects, over-supply in certain trades and scarcity in some others have also been evident. Thus, during the Fourth Plan period, efforts must be made to co-ordinate the training of personnel with the requirements for skilled manpower."

The special emphasis on the training of middle-level manpower is of particular interest to us because this is an area in which the Colombo Plan Bureau has been focussing continued attention in its Intra-Regional Training Programme.

Varying Levels of Education

A major problem affecting the establishment of a vocational and technical training plan in a developing country is the prevalence of varying levels of education among those admitted for training. Trainees in the same field may vary from illiterates to secondary school graduates. It may be possible for illiterate persons to carry out the work involved in some occupations such as traditional farming and handicrafts quite efficiently according to the prevailing standards. But the aim of any government is likely to be to raise standards of performance in these occupations with the result that literacy and education in general will become necessary to a progressively greater extent.

It is clearly impossible to make all people of a developing country literate overnight, let alone give them the supplementary education which will qualify them for training at levels above a certain minimum. The various educational schemes for adults such as functional literacy programmes will take time to make their effects felt and to cover more than a small segment of the adult population. This means that, in the process of vocational training planning, it will be necessary to work on the assumption that in the near future large numbers of trainees will not have the basis of general education which it would be desirable for them to have and to find means of making up these deficiencies.

Training for Changing Requirements

In almost all countries occupational requirements are changing very rapidly. Vocational and technical training must necessarily take account of the changes in requirements, and it is the work of the planner to see how this could be done in the shortest possible time and at the lowest possible cost.

The Machinery for Manpower Planning

As the prime need of developing countries is for rational manpower planning, the machinery for this must be set up as a matter of priority. As a first step, it is essential to set up, within the framework of the government, the organisational machinery with the authority necessary to carry out the planning, directing and co-ordinating of a manpower programme. Since manpower planning is an integral part of planning for economic development, the most logical place to fix responsibility for it is within the organisation responsible for planning and directing the country's economic development programme. Since the recommendation of the national planning body inevitably require the approval of the Cabinet, its decisions are binding upon all agencies of the government.

If no central organisation exists within the government to provide integrated planning for economic development, the best alternative would be a separate agency for manpower planning, independent of the operational departments of government, having the power to make recommendations to the Cabinet for their final decision.

The manpower planning agency would concern itself with three main functions:

(i) Reviewing the government's economic development plan and converting the projected development into manpower terms.

(ii) Identifying and streamlining the existing governmental machinery for the administration of manpower programmes and the collection of statistical data essential for manpower planning.

(iii) Making a survey of the country's manpower resources as a starting point for planning purposes.

Survey of Vocational and Technical Training Facilities

In the preparation of a national plan for vocational and technical training, it is necessary to know the training resources that are available in the country at the time. It is important, therefore, to make an assessment of the physical facilities and human resources which are available for the provision of technical and vocational training.

An inventory of all sources of vocational and technical training should be carefully prepared and kept up-to-date. The inventory should contain detailed information of the training facilities available in technical educational institutions, vocational training centres, technical departments, corporations and industry.

It is also important to know the numbers engaged in providing technical and vocational training and the facilities available for the training of technical education and vocational training staff. I might mention here that the two Studies made over the past two years of the proposal for a Regional Centre for Technician Teacher Training have revealed that in almost all the countries in the region there are hardly any facilities for the training of technical education staff such as technical teacher trainers, administrators, principals of institutions, etc. It is to meet this need that the Colombo Plan is now seriously considering a proposal for establishing a Staff College for Technical Education.

Manpower Planning

Manpower planning must take account of many considerations such as development of natural resources, investments in infra-structure, industry and agriculture, improved public administration, health, education and training of all kinds.

Manpower planning is usually approached in a number of successive stages as follows:

Stage 1: There are various ways of forecasting overall manpower requirements and, in developing countries, one of the most fruitful methods is on the basis of future output in each sector. This method involves identifying the various projects that have been planned and forecasting the needs on the basis that the plan would be implemented as conceived. In some countries, the opinions of employers regarding their needs are used as a basis for forecasting requirements for a short period ahead, while in others past employment trends are used on the assumption that these will continue in the future as well.

Stage 2: The next stage in assessing the needs for trained manpower is forecasting the occupational pattern of future manpower requirements. This is done largely on a sectoral basis by taking the forecasts of the employment likely in each technical branch. (Pages 25 to 30 of HMG Fourth Plan, 1970-75). It will then be possible to ascertain the numbers of persons who at a given future date must have specific types and levels of education and training. It is now generally agreed that, whatever the technique used, the occupational pattern

of a future labour force cannot be predicted with a reasonable degree of accuracy for a long-term period. For short and medium-term requirements, however, the situation may be more satisfactory.

Stage 3: From these are derived some planning schedules of activities required to expand educational flows dealing mainly with (a) site and building construction, (b) teacher training, (c) student enrolment and (d) budgets (pages 64 to 73, HMG National Education Plan, 1971-76).

Stage 4: Projects are then selected and adjusted to achieve balance in manpower supply and demand (pages 74 to 79, HMG National Education Plan, 1971-76). The development of high level technical manpower (scientists, engineers and technicians) should be done centrally under long-term planning (about 10 to 15 years) while the development of craftsmen and skilled workers should be decentralised according to local needs (i.e. panchayats, districts or individual plants) within the framework of medium-term or short-term planning (about 3 to 5 years).

At this stage, I would like to present a "construct" (see Appendix I) that we have prepared in the Colombo Plan Bureau incorporating the main features of the National Education Plan (1971-76) of His Majesty's Government of Nepal in a Systems View of Education. This "construct" which may be used as a broad frame of reference for the discussions at this Seminar, shows how the manpower programmes and the development plan depend on the education and training of the population of the country. It will be for the planners to assess qualitatively and quantitatively the contribution of education to the development of human resources and to economic growth and progress.

Problems of Planning

(i) The Imbalance in the System of Education

In most Asian countries there is a serious imbalance in the prevailing system of education, with a widespread preference for an academic type of education and education is not diversified. Vocational and technical training has, until recently, been largely neglected, and far fewer resources are devoted to it than to general education.

(ii) Priorities for Training

The determination of priorities for training is one of the most difficult tasks faced by the manpower planner. With the limited resources available and the lack of reliable statistical data, the planner has to do his best keeping in mind the needs of the economy, the needs of the individuals and above all the social objectives, both immediate and long-

term. In a country such as Nepal where it is estimated that about 93 per cent of the total labour force is engaged in agriculture, the dominance of agriculture in the economy would undoubtedly be a major factor to be borne in mind in determining priorities for training.

(iii) Training Staff

The experience of all countries, both developed and developing, has shown that no matter how carefully conceived a vocational and technical training plan may be its ultimate success depends on the quality and numbers of the people who impart the training. The planner will therefore need to devote very careful attention to the question of how training staff of the requisite quality in the required numbers are to be made available.

(iv) Costing and Financing

The training that has to be provided to meet modern manpower requirements is likely to be expensive and, in the case of most developing countries, it would appear to require more funds than are currently available.

The planner would be mainly concerned with funds required from the government for purposes of establishing and operating new training facilities for technical personnel and staff and for administering the vocational and technical training programme. The planner may also consider the ways in which employers can contribute to financing training programmes bearing in mind that employers in the countries of the region are generally not training conscious and usually make meagre provision for training.

(v) Training Standards

An important requirement for the implementation of a vocational and technical training programme is the establishment of national training standards covering educational requirements at entry, the duration of training, curricula, and a system of testing as a check on proficiency leading to the issuance of recognised national certificates.

(vi) Legislation

Is legislation necessary or desirable for implementing a national vocational and technical training programme? Many countries with well developed industrial training programmes have no legislative requirement for employers to undertake training. Two important criteria are necessary for successful training legislation. The first is that it should be enforceable and secondly the legislation should effect only employers who are not currently implementing reasonably satisfactory training programmes. Subject to these, there appears to be a case for certain minimum legislative provisions particularly for apprenticeship training, a system of formal vocational training characterised by the master/apprentice relationship which is governed by a contract.

Implementation of the Vocational and Technical Training Plan

The successful implementation of a national plan for vocational and technical training will largely depend on the government departments which are assigned responsibility for administering vocational and technical training programmes. In many countries, the Ministry of Education is given responsibility for the administration of technical education programmes at the middle and higher levels, in the schools, while the Ministry of Labour is responsible for administering the vocational training and apprentice programmes. In some countries responsibility is assigned to an autonomous or semi-autonomous organisation with powers equivalent to those of a government department.

While vocational and technical training programmes concern several government departments as well as employers and workers there is a need to designate one authority with national responsibility for vocational and technical training. Hence it would be desirable to make various arrangements which would ensure that all the interests which are concerned with vocational and technical training are associated in one way or another with policy formulation, planning and implementation. This association and consultation may be achieved by setting up various councils, committees and other advisory bodies at the national, regional and local levels. The high-level body could be a national council for vocational and technical training. This council's function would be largely advisory but sometimes executive powers may also be given. The council should be empowered to co-ordinate all vocational and technical training activities and have the requisite machinery for the purpose of consulting all concerned, i.e. employers, workers, technical departments, technical education institutions, professional bodies, etc. While the Council will not necessarily have responsibility for implementation, one of its major tasks will be to co-ordinate its activities with all sectors having a bearing on vocational and technical training. The national council will be concerned with the overall policies and programmes for vocational and technical training. It would be relevant here to refer to a recommendation made at a Colombo Plan Seminar on the same theme in Malaysia about two years ago. That Seminar recommended the establishment of a National Council for Vocational and Technical Education and Training which will advise the government on all aspects of vocational and technical education and training relating to technicians and skilled workers in the country.

The Role of External Assistance

The countries in the region have received external assistance in the following forms to develop their systems of vocational and technical training:

(i) Capital - either as loans or grants.

(ii) Services of technical personnel serving as consultants, advisers or experts.

(iii) Fellowships for study abroad.

(iv) Physical and technical equipment, machinery, books, etc.

The sources from which this assistance has come are diverse:

(i) Bilateral sources including member governments of the Colombo Plan.

(ii) Multilateral sources such as Unesco, ILO, FAO, the World Bank and the Asian Development Bank which recently provided funds for development of technical education.

(iii) Private foundations such as the Ford Foundation.

As a consequence of the considerable experience gained in utilising foreign aid in programmes of technical and vocational training, the following points merit consideration:

(1) The nature of the aid provided must be clearly defined and it must be suitable for the purpose intended.

(2) The conditions under which foreign aid is provided must be flexible.

(3) As aid from diverse sources can result in varying standards in technical and vocational training, care must be exercised to see that national standards are not unduly affected. In this connection it would be desirable for some centralised agency such as a National Council to exercise control in receiving and utilising technical assistance.

(4) In the case of overseas training, it must first be ascertained whether the training is really needed. Great care must be exercised in the proper selection of trainees and there should be follow-up on their difficulties. When the trainees return, they must be put to optimal use on the jobs for which they were trained.

(5) In the case of experts, provision should be made for their orientation to adapt them to local conditions. Local counterparts of the right kind should be appointed to work with the experts. Some provision should also be made to ensure that the experts also report regularly to the recipient government concerned on their performance and the problems encountered.

(6) Technical assistance programmes should be used more often for the practical training of technicians in industry in donor countries.

(7) Technical assistance should be used to a greater degree in areas where regional countries are weak such as technical education staff development.

In many of the countries of the region, when considering the problems of planning vocational and technical training it has often been pointed out, with some justification, that perhaps the greatest problem concerns attitudes towards manual work, that is, the reluctance of educated Asians to take to work which involves the use of their hands; and yet ancient history shows that the people of these countries are latently possessed of creative as well as engineering talents found in their treasures of art and architecture and learning. The Taj Mahal in India, Angkor Wat in Khmer and Borobudur in Indonesia, to mention only three, bear testimony not only to the great artistic and cultural traditions but also the high level of engineering and craftsmanship that prevailed among the peoples of the region.

In conclusion, I would like to request you to consider the points I have made in this paper in relation to the particular problems of Nepal. When working for an organisation such as the Colombo Plan, we tend to think in regional terms and all the things that I have said may not be directly relevant here. However, the purpose of the paper is to stimulate thinking on this important subject so that we may follow up specific ideas in the subsequent discussions.

Panel Comments on Mr. Espinosa's Paper

By Mr. B.B. Pradhan
Secretary, Ministry of Finance

I am indeed very grateful to the organisers of this Seminar for having invited me to participate as a panel speaker and comment on Mr. Espinosa's Paper.

The Chairman has been kind enough to refer to my background and as you may have noted my previous experience in engineering and the various posts that I have held have made me take a great personal interest in vocational and technical education and training.

The theme of the Seminar "National Planning of Vocational and Technical Training" is one that is of the utmost importance to a developing country like Nepal. It is particularly significant that the Seminar has been timed to coincide with the phased implementation of the New Education Plan. There are many changes that are being made in the educational system of this country and not the least important is the emphasis that is to be placed on vocational and technical education and training. Our people must be provided with opportunities to acquire skills in various fields so that we may have adequate manpower resources to develop our economy.

It is most important that education should be production oriented so that the products of our schools would be able to seek gainful employment and use their skills to increase productivity.

Another problem that I would like to touch on relates to the status and salaries of persons in vocational and technical occupations. In common with many other countries in the region, we have tended to neglect these aspects and as a result the better types of students are not being attracted to vocational and technical education.

I have no doubt that the Seminar would be a very interesting and useful exercise and that the recommendations that emerge from it would be of great value to our planners.

Panel Comments on Mr. Espinosa's Paper

By Mr. P.G. Caswell
ILO Project Manager
Nepal Engineering Institute

The paper of Mr. Espinosa gives a solid base for the work of this Seminar. There are a few points I would like to take up which need to be given special attention. Before taking up these points, however, I think it is necessary to suggest that the terms used for workers in industry be clarified. We hear and read about higher, middle and lower level technicians; unskilled, semi-skilled and skilled labourers or workers. It is necessary that the work carried out by the various classifications of workers be defined to eliminate the present confusion.

The first point I take up from Mr. Espinosa's paper is from the first paragraph - "in order to ensure that the right kinds of people are trained". There is a tendency to consider only those who have passed the School Leaving Certificate Examination for formal training. I think that those who have passed the SLC Examination should be trained for the technician and professional posts and that those who have not succeeded in the SLC Examinations, or have not reached that standard, should be given priority for skilled worker training.

The next point concerns "Training for changing requirements". There is a tendency for training institutions to set up courses which continue "for ever and ever" without the needs of industry being taken into account. It is essential that the needs of industry be carefully considered and that in some cases for industry to be given assistance in deciding what type of workers they really need. An example of this is in the Fourth Plan Manpower Requirements, it is indicated that 800 skilled workers, including plumbers, will be required for drinking water projects. I think it very likely that not one plumber is really required but pipe fitters who can be trained in a very short time.

Regarding "Priorities for Training", we are informed that 93 percent of the labour force is engaged in agriculture. This

sector is the one which I think should be given priority in training, courses being designed to produce practical farmers who can demonstrate to the untrained farmers improved farming techniques. Until the mass of the population has a higher purchasing potential any large scale industrial development will be difficult. As the mass of population is involved in agriculture it is this sector which I consider needs priority.

On the question of "Training Staff", the present policy of recruiting secondary school leavers and others with only an academic background for training as vocational teachers, including those vocations needing a high level of skill, cannot succeed. It is necessary to recruit personnel who have the skills and teach them to be trainers.

"Costing and Financing" - It has been rightly pointed out that the establishing and operating of new training facilities is very costly. We tend to think that high quality buildings are the first essential. This is not so and consideration should be given to simple cheap buildings in the initial stages and for development to be undertaken as student training projects by those training in the building trades. This procedure not only reduces cost but provides ideal training, develops student interest and retains the interest of ex-students in the training centre.

My final point relates to "overseas training". The majority of training given in the past has been in the form of university training financed by the donor countries. This has led to a position where there are over one hundred qualified engineers unemployed. Very little interest is shown by donor countries in offering training at the lower, but more essential, levels; that is for skilled workers and technicians. These are the fields of overseas training which need to be developed.

Manpower Requirements in Planning Vocational and Technical Training in Nepal

By

Mr. Harsha N. Thakur
Chief, Human Resources Division
National Planning Commission Secretariat

"The experience of the Panchayat decade has made us realise that unless political revolution is backed by changes in the technical and psychological sphere, the country cannot move forward as far as we would like it to." This clarion call of His Majesty King Birendra has initiated the need for fresh thinking on the training of vocational and technical education. The inculcation of right attitudes towards the public and towards the business is very important. For that reason technical personnel in Nepal must be tuned to the task which they will be called upon to perform in the changed context of development within the framework of policy objectives of the Panchayatocracy.

In Nepal its significance is highlighted by the fact that we have made radical changes in the Education Plan. In the situation of an expanding economy and our planned targets we find that our manpower position is not as satisfactory as it should be. The picture will be clear on seeing Table 1.

The supply and demand picture clearly reveals an imbalance which has to be set right. We are in a peculiar growth stage. On the one hand we have before us the risk that our developmental plans and projects may get jeopardised due to shortage in the important segments in the technical and vocational field and on the other the surplus is showing trends of neglecting national areas of operation opting for employment-cum-specialised training abroad. So far as high level manpower is concerned it is not suitably deployed and we find undesirable concentration at the headquarters. In addition, the number of people in high level category exceeds those in the mid-level category and the latter is more numerous than the low level personnel. For the whole of the engineering sector the ratio of top-level graduates to intermediate has been estimated to be 1 : 0.9.

We also know from our experience that the training given in vocations with little demand has caused imbalance in low economy because many such trained persons remain unemployed. This is a serious national loss. The training imparted to higher level technical personnel outside the country has also not been utilised to the fullest extent which obviously suggests that there is imperative need for training of supporting middle level personnel within the country. It is also commented that the expanding economy of Nepal is not matched by suitably skilled manpower to man the new areas of our economy. New vistas of the economic horizon are being opened with greater awareness of our export potentialities and favourable climate for trade expansion in the region.

Table 1

Total Demand & Supply Relationship of Selected Specialised Manpower for 1971-75 (2028-32)

Subjects	2028-32 (1971-75)		
	Demand	Supply	+ Surplus - Shortage
(1) Engineering	1236	963	(-) 275
Graduates	408	382	(-) 26
- Civil	253	210	(-) 43
- Architectural ..	10	27	(+) 17
- Electrical	79	37	(-) 42
- Mining	21	3	(-) 18
- Agriculture	21	95	(+) 74
- Metallurgical ..	5	2	(-) 3
- Chemical	19	8	(-) 11
Diploma	828	581	(-) 247
- Civil	636	288	(-) 348
- Electrical	132	107	(-) 25
- Telecommunication ..	60	186	(+) 126
(2) Medical, Surgery & Related	2257	1686	(-) 571
Graduates	377	330	(-) 47
- M.B.B.S. Doctors ..	120	119	(-) 1
- Dentist	1	6	(+) 5
- Pharmacology	2	5	(+) 3
- Nurses[a]	254	200	(-) 54
Diploma	1880	1356	(-) 524
- Auxiliary Health Workers	822	480	(-) 342
- Professional Midwives	968	828	(-) 140
- Lab Technicians ..	90	48	(-) 42
(3) Agri. & Related Scientists	1642	1123	(-) 519
Graduates	179	251	(+) 72
- General Agriculture ..	174	243	(+) 69
- Food Technology ..	5	8	(+) 3
Diploma	1463	872	(-) 591
- Agricultural Ext. Worker[b]	1463	872	(-) 591

a/ Includes Nurses & Auxiliary Nurses.
b/ Includes Junior Technicians & Junior Technical Assistant.

Source: Supply and Demand of Manpower Human Resources Division, National Planning Commission, Singha Durbar, Kathmandu, June 1972.

In Nepal, as in some other developing countries, skills are yet to be properly evaluated while skilled persons are not being used effectively. This has resulted in diffusion of skilled persons to other jobs and unemployment of a sizable number of skilled manpower. Needless to say that abundant manpower without skills and expertise and without provision of adequate employment opportunity will be as much a problem for society as the problem caused by competition for professional jobs among unqualified persons.

Let us take the position of existing training institutes in Nepal (see Table 2).

(a) If we carefully study the demand pattern we will notice that training facilities are not found for such vocations as surveyors and draftsmen. We find that the construction industry has been boosted up in recent years but no suitable training facilities exist for the related carpentry. Many other areas of technical and vocational education are still not touched though scope for them exists if the long-term projection of the economy is taken into consideration. Textile technology may be required in the near future but as yet there is no institute which imparts even rudimentary training in this field. Similarly in the case of paper technology suitable infra-structure exists for a medium-scale paper industry if not for a large-scale one. These are just illustrations, many more such areas can be cited where there is a need for an immediate beginning so that when the relevant industry or factory gets going its progress may not be hampered due to the non-availability of matching manpower.

(b) It is also found that the training imparted in these institutes are preponderently theoretical in bias. This needless to say comes in the way of sound practical training on the basis of which the trainees can confidently enter the field. No wonder some of the trainees find themselves less equipped for the practical world.

(c) The trainers in most cases in the existing institutes do not have as much practical experience as they should. It is generally found that the trainers have not had training beyond a period of one year after which they are called upon to train. It is evident that most of these trainers have had only nine months training in the advanced countries and immediately after their training they were called upon to train people in these institutes. On the other hand, the highly sophisticated theoretical and practical knowledge and experience gathered by them could not be wholly put into positive use for the differences in operational background are so great.

(d) Under the broad headings technical and vocational we have many heads for which we have done nothing by way of a training programme. In some of these areas we have the right persons with the right theoretical background whose services could be utilised after giving them adequate practical training that could be a self-generating process. To illustrate, in the field of metallurgical engineering we have 11 qualified persons. If six of them are provided with

Table 2

Vocational and Training Centres

Type of Institutes	Total No. of Institutes	Trades	Duration of Training	Number of Trainees	Total No. of Teachers
1. Technical Training Centres	4	Auto-Mechanics, Fitters, Mechanists, Electricians, Welders, Cabinet-Makers, Sheet-Metal Fitters, Builders	3-4 yrs.	683	69*
2. Nurses Training Centres	4	Para-Medical Staff	2-4 yrs.	190	19
3. Mechanical Training Centres	2	Welders, Fitters, Mechanists	1-3 yrs.	36**	8
4. Agriculture College	1	Intermediate level in agriculture, Junior Technical Assistants	1-3 yrs.	240	36
5. Engineering Institute	1	Civil, Electrical	2-3 yrs.	80	14
6. Forestry Institute	1	Foresters, Rangers	2-4 yrs.	60	6
7. Auxiliary Health Workers School	1	Para-Medical Staff	2 yrs.	136	10
8. Cottage Industries Training Centre	1	Mechanical, Electrical, Leather, Pottery, Hosiery, Carpentry	1-2 yrs.	50	N.A.
9. Ayurvedic School	1	Indigenous Medicine	2-7 yrs.	64	16

*Total number of teachers from one Technical Centre is not included.

**Total number of trainees from one mechanical centre was not available at the time of compilation.

field experience for, say, three years in Nepal, they can look after a modest training programme in metallurgy by 1974, by which time more and more now in the pipe line can come forward to relieve the present set up. Similarly in case of pharmacology, for which there is a great need today in Nepal, we have 65 qualified persons, half of whom could be profitably used in the industry and half for practical training programme if there were an institute of pharmacology.

In view of the above observations on the prevailing situation what would be the most appropriate line of action to improve things?

(i) In consonance with the new education policy, the existing training institutes as well as future training institutes should be placed under the overall charge of the university.

(ii) The national education policy clearly indicates that the university would provide education and training at different levels according to the manpower needs. The Ministry of Education will from time to time estimate the manpower needs of the country in consultation with the Human Resources Division of National Planning Commission. The university will have a decentralised administrative system under which each institute (including the vocational and technical) will be vested with adequate administrative and financial powers.

(iii) This scheme will have certain advantages. The oft-talkied of problem of lack of co-ordination will be satisfactorily solved because under the new Education Plan the Rector of the University will be there to establish co-ordination among the various institutes. The Rector by virtue of his office can easily work as the central co-ordinating agency for different institutes and may be expected to work as their friend, philosopher and guide. Since these institutes would be headed by the Dean who would be an expert in the Faculty the chances are that the institutes would function better than they do now where these institutes are manned by different ministries.

(iv) The theoretical objection that the institutes may have undue theoretical bias due to its university linkage can be met by pointing out that the institutes as envisaged under the new Education Plan will be field oriented and will have in view the conditions prevailing in the land. In other words the education and training will be skill and job oriented.

(v) There is provision in the plan that every year a conference of the Deans of the institutes and other persons nominated by the Vice-Chancellor will be held to evaluate the educational programme of each institute, for co-ordination among the various institutes and to work out new programmes in the light of experiences gained and needs ascertained.

(vi) Since the institutes will have faculty boards manned by qualified persons they will be expected to maintain the high standards and prepare the curriculum and work out programmes in such a way that neither the quality of training nor the method of training suffers.

This, however, should not delude us to believe that the training scheme under the university will have no initial problems. Till the new Education Plan really clicks and gets firmly rooted the chances of the training institutes being neglected in the transitional phase cannot be ruled out. The theoretical bias associated with the university is likely to creep in adversely affecting the practical content of the training imparted. There may be again practical difficulties with regard to autonomy of different national institutes and training centres under them. The autonomy of educational institutions has been one of the rocks on which many plans have flopped. In the new Education Plan this aspect of autonomy has been very carefully taken into consideration.

Though exact figures relating to the trained technical and vocational personnel among the retired British Gorkha Soldiers is not available, yet it may be worth while to take into consideration this potential source of supply for meeting the shortages of the middle level trained manpower. The rich store of practical experience can profitably be utilised both by the training institutes as well as by the private and public sectors of the economy.

The Tribhuvan University should take upon itself the new responsibility to match the demand in different technical and vocational fields by increasing the number of science graduates without impairing their quality.

In the field of health, greater attention needs to be paid and the existing institutes have to be upgraded, improved and their training facilities be made open for larger numbers.

There should be pre-entry job training for fresh graduates, so that practical orientation is achieved and the institutes get persons who are up-to-date in theoretical knowledge and are not ignorant of practical work.

Introduction of "on-the-job" training in industries starting with well organised and large establishments.1/

Standardisation of the technical and vocational education is also very important. It will be useful if a Staff College for Technical Education is established here so that it could impart training to trainers of the technical and vocational institutes. We could have one centre at Kathmandu at the initial stage and it may in due course arrange for refereshcr courses also.

Conclusion

There is no denying the fact that the existing facilities and programmes for vocational and technical training fall short of the present national requirements. To make the best of the existing institutes within the framework of accepted national goals and possible future development, the training centres need improvement both in quantity and

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1/ Supply & Demand of Manpower - Human Resources Division, National Planning Commission, June 1972.

quality. Unfortunately, we do not have adequate statistics and bio-data of the trainers, otherwise some tangible improvements could have been suggested in that direction also.

Panel Comments on Mr. Thakur's Paper

By Dr. N.K. Shah, Chief of Epidemiology
Department of Health Services

Let me take this opportunity to thank the organisers of the Seminar for allowing me to participate in it. I wish to congratulate Mr. Thakur for his comprehensive Paper.

In Table 1 of his Paper he has shown the manpower situation in Nepal. If we try to draw a manpower pyramid it will be a reverse pyramid with highly trained manpower in large numbers and middle-level manpower in small numbers. If we try to compare the training requirements for the jobs needed in development programmes, we will find that the largest numbers of jobs required the shortest periods of training.

Let me follow this up in my own field, that is, health. In a developing country like Nepal where communicable diseases are highly prevalent, personnel with a minimum of training can serve large numbers of the population with great efficiency, whereas a specialist, who will need at least 12 years of training after high school, can give his services to specialised cases only. However, if we look at the manpower situation there are more doctors than nurses, more engineers than overseers, and so on. In such a situation, our priorities in training should be directed towards training intermediate level technical personnel and skilled workers who will have a greater impact than a few highly trained persons.

I wish to draw your attention to one more point made in Mr. Thakur's Paper relating to the recruitment of ex-servicemen. Due to their age and lack of general education requirements as prescribed in the rules for recruitment of HMG such personnel cannot be utilised in productive jobs which call for skilled manpower, so I recommend strongly that such rules should be relaxed to meet our urgent manpower needs.

Panel Comments on Mr. Thakur's Paper

By Mr. Pashupati Shumshere J.B. Rana, Executive Director
Centre for Economic Development and Administration

The problem of vocational education is deeply interconnected with the social system from which the inputs to the schools come and with the production system to which its output go. So the problem has to be considered in unity - this particular application is provided as a sample of how this approach can be used for practical purposes.

First of all a categorisation can be made within vocational education of these areas where high school might help and where middle school is likely to be adequate. For instance carpentry, brick-laying, stone-masonry, tailoring, tanning and leather work are unlikely to gain from high school. These will be termed 'A' skills. In the case of J.T.A.s, high school in the sense that it encourages urban-aspirations may even be a hindrance. On the other hand, nursing, secretarial work, radio mechanics may well gain from high school. This will be termed 'B' skills. Thus a distinction could be made between these two streams.

Similarly, the problems of those children coming from better off groups requiring status recognition at the end of the educational stream and those of the economically depressed, requiring compensation for the family earnings foregone in sending a child to middle or higher school, also represent two different streams. The diagram as Vocational Education attempts to equate these two problems in a policy.

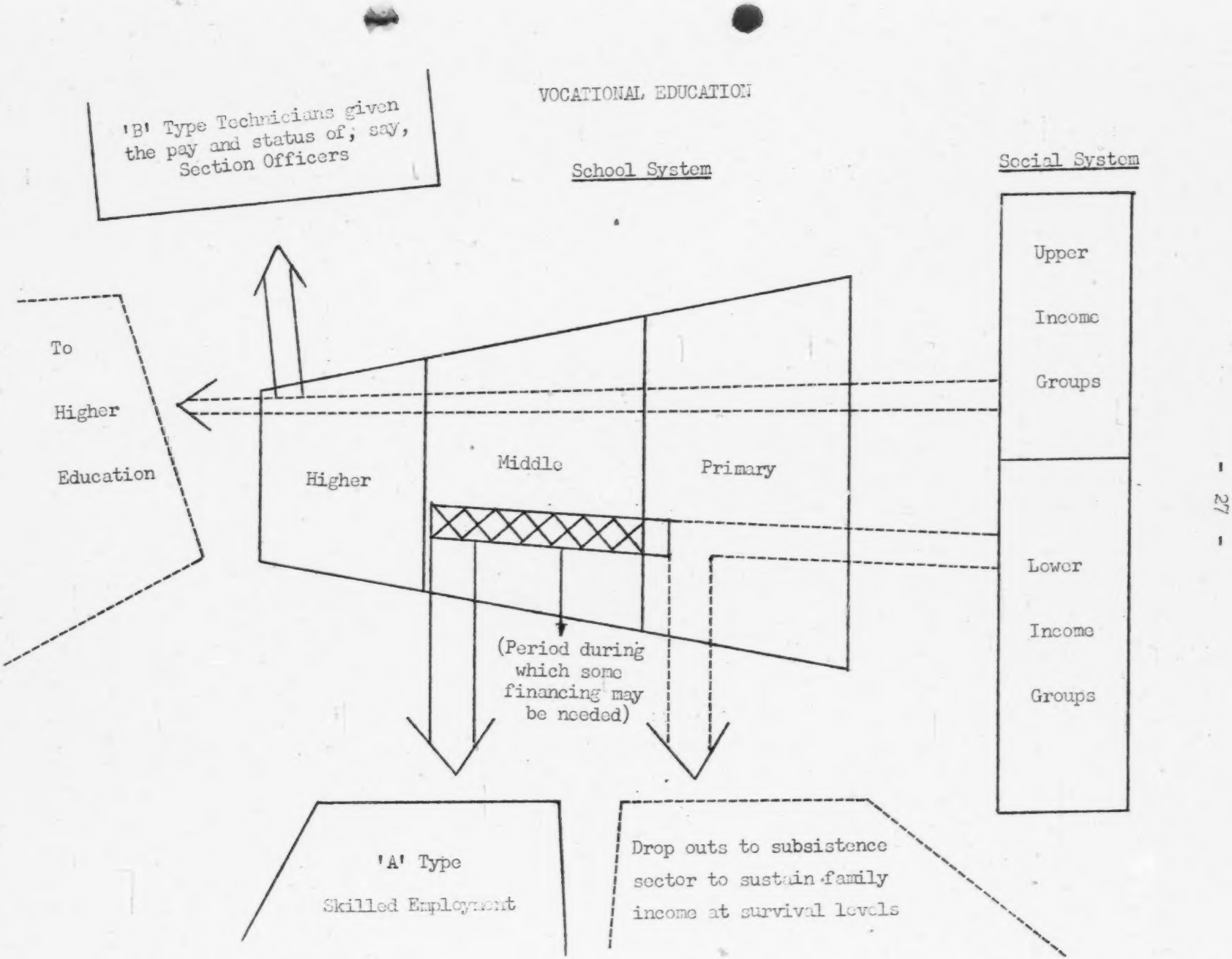
Since in the present situation lower income group children drop out at the primary level mostly (dotted line in diagram) it is suggested that the new policy attempts to (1) sustain this group through middle school and (2) provide them with 'A' group vocational training at this stage so that they can find early skilled employment (continuous line). The education of such people may also need a small student stipend to compensate for the loss in family income (for the period indicated by crosses). This could be provided to the children of the landless only or on the basis of some such simple criterion.

Secondly, the higher income groups although they take training in skills still try to move to a Bachelors degree, (dotten line) thus wasting the training in skills received at the higher school level (or after that). 'B' type techniques can still be taught at higher school levels. But governmental pay policy will need to be changed, so that these technicians will be given ranks equivalent to a section officer with similar pay. (Since the socio-economic need for these technicians, due to their scarcity, is higher than the need for graduates, a rise in the market price for them is quite rational; the instance of Cottage Industries Department's successful use of this policy can be cited.) In this way a substantial portion of such people are tapped away from the higher education stream (continuous line).

In terms of implementation, 'A' type middle-schools (vocational education at middle level) could be kept in rural areas and 'B' type (i.e. middle-schools providing general education with orientation and the real vocational education at higher school) in urban areas.

This suggestion is open to at least the following criticisms:

(1) It consolidates class differences and inhibits social mobility by forcing lower-income groups to low-level skilled jobs and providing higher-level technical opportunities to the well-off only.


VOCATIONAL EDUCATION
'B' Type Technicians given the pay and status of, say, Section Officers
School System
Social System
Upper Income Groups
To Higher Education
Higher
Middle
Primary
Lower Income Groups
(Period during which some financing may be needed)
'A' Type Skilled Employment
Drop outs to subsistence sector to sustain family income at survival levels

The answer to this is (a) this is a misunderstanding of the real situation, since, if the chance to gain a skill at the middle-level were not provided, education ceases to be a viable means of early gainful employment and therefore not a possible means of social mobility at all. (b) This is a picture for the broad pattern; the best of the poor can as the original programme suggests be given scholarships right the way to higher education. (c) Once they have begun to earn some money the poor should obviously be provided a possible further means of mobility such as night high school classes.

(2) The criticism that the skills cannot be taught at a middle school level as they are too young.

The answer is (a) if they are old enough to produce for their family, they are old enough to learn production-skills. (b) The poor often come to school at a later age than the rich and by 12-15 in terms of Nepalese socio-economic reality they can be considered able-bodied labourers. (c) Anyway if they don't learn skills at this stage, they are bound to drop out.

(3) The stipend for middle school is not economically viable.

The answer is that, if the cost of vocational education in 1966/67 was Rs.2,361 per cap., as the I.L.O. report says, a monthly stipend of Rs.10/- will mean only Rs.120/- p.a. for say 10% of the middle school children. (This is assuming that the poorest group, say the landless, are about 1/10th of the population.) This won't mean a significant addition. Rs.120/- for 10% means Rs.12/- per capita or an addition of 0.48% (of Rs.2,361) to the cost of vocational education.

At any rate sources such as the Temple Guthis' funds have not yet been tapped for such purposes - and they represent a justifiable use.

SESSION TWO

Chairman: Mr. S.B. Shakya

Problems in Planning Vocational and Technical Training in Nepal

By

Mr. K.R. Tuladhar
Principal
Nepal Engineering Institute

Introduction

In Nepal, during the last decade, there have been tremendous efforts to achieve greater economic growth. Economic growth involves the accumulation of physical capital and the development of human resources. To develop human resources, many vocational training centres have been started. The development of vocational training centres have created a series of problems.

The paper considers the broad problems in planning vocational and technical training in Nepal. It examines, in turn, the nature of training, lack of a top-level agency to co-ordinate vocational education and training, non-availability of teachers, orienting the mind towards acquiring technical skill at the school level, lack of interest for vocational and technical training, lack of norms, training equipment and text-books.

The Nature of Training

One of the main factors, not previously fully examined but which seems to affect the planning and development of vocational and technical training in Nepal, is the difficulty administrators and educationists have in understanding the ultimate object of vocational and technical training. The object of training is to produce contented and efficient skilled personnel in the shortest possible time to fit into a particular job. The term training is inextricably mixed up with education. Mr. John Marsh, Director of the British Institute of Management has defined 'EDUCATION as the process of keeping man's mind open to new knowledge. Learning as the search for knowledge, TRAINING as the process of imparting skills to man, and, equally important, keeping skills up to date by retraining'. Ministries, secretariats, departments, particularly engineering departments, universities and technical institutes, all have a hand in the technical education and training programmes, directly or indirectly, and until all have a clear idea of technical training and can determine the manpower needed at each level for the country - after full consultation and co-operation with concerned departments and industry - there cannot be any profitable large-scale progress in the sharing of facilities with other friendly countries and aid agencies.

Lack of a Top-Level Agency to Co-ordinate Vocational Education and Training

Vocational and technical training is only of recent development in Nepal. With the exception of the Nepal Engineering Institute all other establishments were founded in the last decade. All were aided, built up and directed by friendly foreign agencies, at least in the beginning of their existence and are being run independently by different departments of His Majesty's Government. A survey and study team from the German Development Institute that visited Nepal recently remarked "The objectives envisaged by donor countries or institutions were either influenced and incorporated into these training establishments or became subject to the more subjective than objective concepts of an adjustment to the prevailing conditions in Nepal". Thus a multiplicity of donors and supporters established vocational and technical training institutions under supervision and management of different agencies having independent vocational and technical training policies and programmes and responsible for their own establishments only often without objective interest or technical competence. This complexity of responsibilities has so far not allowed any co-ordination of planning of vocational and technical training, teaching programmes, curriculum of training, etc. to improve standards and to make for economic ways of training, on a solid basis. The different supporting agencies, viz. ministries, departments, etc., are undoubtedly busy with many other important activities and moreover, in most cases, they did not have know how and interest to deal with training problems in depth. There is no central organisation to co-ordinate vocational and technical training activities. The new national educational planners, however, noted all these discrepancies and recommended that all the technical institutions as part of educational institutes be placed under the University. It is hoped that all the problems regarding administration and supervision, standardisation, disproportion in profile of training, geographical disproportion of training, cost and efficiency of training and problems of teaching equipment, staff, etc. will be solved effectively and efficiently soon. The university authorities have to separate general education from technical and vocational education and training and develop a competent separate central agency to promote and administer vocational training and education.

Non-Availability of Suitable Teachers

Apart from the lack of physical facilities, viz. buildings and teaching and training equipment, the main problem is the lack of suitable teachers who can be entrusted to do the training. Engineers are mostly employed in various development projects which are given higher priority compared with teaching and training of technicians. Engineers themselves might consider the field work or table work more attractive compared with teaching and training because of prospects of quick promotions, better facilities and pay. At present, there is no compensatory emolument in the teaching profession. Sometimes there is a tendency to push the unwanted engineers into the teaching and training institutes in spite of their little or no interest in the profession.

How can a teaching and training institute run effectively and produce efficient technicians who are to be entrusted with important development work? How can we expect better performance and solid achievements if we do not pay special attention and provide facilities to the teaching and training programmes? Therefore, selection and recruitment of teaching personnel at vocational and technical institutes should be handled tactfully. The scales of pay offered in teaching and training service should be attractive so that the best of the lot with the right bent of mind would be attracted to join the profession.

Orienting the Mind Towards Acquiring Technical Skill at the School Level

Like other developing countries, in Nepal, a heavy premium is placed on mere acquisition of knowledge centred mainly around theory and not its application. It is necessary to introduce even at the school level concepts of "activity oriented" and "project method" in order to encourage self-study, this leading to education being more purposeful and dynamic. The concept of Self-Study is not only applicable to technology but also to all other areas of study, e.g. fine arts, social studies, etc.

Education at school level should aim at providing a deeper scientific and mathematical knowledge combined with adaptability based on the method of "problem solving" and balanced by training in skill for co-ordination of mind and hand in different spheres. Only thus can students who later on take to vocational and technical education and training adapt themselves to the demands of new advances in technology. Actively oriented "work experience" at school provides the best means of developing mental, moral, social and physical powers of a student, and helps him in the formative stage to achieve a certain degree of manipulative skill, to inculcate the dignity of manual work, to motivate the inquiring minds of the students for a vocational and technical career by making them realise the importance of such courses in the building up of the country and nation and particularly to overcome social prejudices inherent in parents and the students towards vocational and technical careers and thus reduce undue attraction for "white-collar" careers. The New Education Plan, which was launched recently, aims at the orientation of the mind towards acquiring technical skill and is intended to solve the problems that existed in the past at the school level.

Lack of Interest for Vocational and Technical Training

One of the main problems in the field of vocational and technical training has been the inability to get students of adequate quality for training. One of the reasons is, of course, that the prospects in being a technician are not as good as in other occupations especially at a higher level. Vocational and technical education and training is, at present, not so organised that every person can continue his education and training until his potentialities have been developed to the full. Appropriate measures should be taken to

provide facilities to up-grade his talent and skill. The main drop-outs and diversion from vocational and technical occupations are due to non-recognition of the dignity of manual work and its importance in modern production processes by society and organisations in general.

Lack of Co-ordination Between Industry and Vocational and Technical Training

The organisation of training programmes in co-operation with industry including civil engineering and building industry is important. So far, very little information is known in this field. If industry is not prepared to or consider to co-operate with government industrial training institutes or government departments responsible for training, then no substantial development can be achieved by any one of them. It is of great importance for responsible authorities in Government and Industry to see the training schemes in operation in other countries, particularly where there is close co-operation between training institutions and industry.

The Lack of Norms

The other main problems of vocational and technical training both at the skilled worker or craftsman and the technician level is the establishment of suitable norms or standards in each of the trades or technologies and the institutions with tests which will be recognised not only nationally but also internationally.

An independent agency is to be set up to devise means of standardised tests at all levels, after agreement over the terminologies of each skill or occupation from the skilled worker or craftsman level right up to the engineering technician level. The test should be such that it is in accordance with the government national tests fully represented by the industry that will mainly be making use of trainees. It should maintain standards not only within each country but also outside for the purpose of international exchange of people and information.

Training Equipment and Text-books

Well equipped laboratories and workshops are the mainstay of vocational and technical training institutes. Text-books and teaching manuals are to be made available for the effective teaching and training of skilled workers and technicians. A great amount of funds is necessary for the above in comparision to general education. It is desirable for setting up a centralised agency for the design and production of education and training equipment and teaching manuals, to streamline purchasing procedures, to create a central pool for the procurement of foreign made equipment, to modify the fund allocating system and to effect relaxations in the operation of the standard list. The principal aim in framing a standard list is to render guidance and help the training institutes in procuring the equipment as economically and speedily as possible.

Suggestions

The prevailing situation of vocational and technical training in Nepal needs strong and tactful action in order to develop it within a short period of time. The following points should be considered:

(1) to set up a new look and approach to the problems in the light of national economic development in the country by filling in the gaps and removing the weak points in present training procedures.

(2) to find out ways and means of immediate future development of training on the basis of specialised manpower requirements according to the prevailing needs of the country.

(3) to establish a responsible and powerful top-level agency at the national level to take up all activities relating to the development of vocational and technical training, effectively and efficiently.

Conclusion

The economic prosperity of a country is firmly hinged to the development of the knowledge, skill and abilities of the people to transform national resources into something useful to meet human want. We cannot develop knowledge, skill and abilities unless we have a top-level agency powerful and responsible to look after all-round activities and development of the vocational and technical education and training. It is earnestly requested that all those concerned, viz. Ministries, Secretaries, National Planning Commission, Public Service Commission, the University and Industry should co-operate in their individual capacity to provide a helping hand in developing vocational and technical training at different levels according to the prevailing needs of the country. So, in spite of going over the past, it may be profitable to give a new look and approach and to work energetically to meet the requirements of the technical manpower at different levels.

Panel Comments on Mr. Tuladhar's Paper

By Dr. D.D. Bhatt, Professor & Head of the Department of Botany
Tri-Chandra College

After listening to Mr. Tuladhar's presentation, in which he has dealt with the subject effectively, I feel there is very little that I could add.

Mr. Tuladhar has referred to the prerequisites for economic growth, that is, capital formation as well as human resources. But, to my mind, the most important thing is to have definite economic policies from which everything else will flow. With regard to the formation of a national plan for vocational and technical training, factors such

as GNP, rate of growth, etc., serve as definite guide-lines. The creation of a profile of manpower is no doubt determined by these factors, and once these are available the formation of plans becomes a much easier task.

Mr. Tuladhar has rightly emphasised the need for assessing the manpower requirements after due consultation with those bodies which utilise the services of the products of the training institutes, particularly industry.

Another point which he has highlighted relates to the imparting of skills. At present there is too much bias towards the academic side, which is true not only in general education but also in vocational and technical education as well. He has rightly pointed out the difference between education and training, the former being defined as "the process of keeping man's mind open to new knowledge" while the latter being "the process of imparting skills to man". The question of helping students to acquire right attitudes and developing in them the "problem solving" approach is of great importance. But, it is not only the students who should have the right bent of kind; the responsibility of parents and guardians in reorienting their thinking towards vocational and technical education is no less important. This suggestion regarding "work experience" in schools is worth serious consideration.

The problem of training the trainers - the teachers - is a crucial one. This was brought out both at the inaugural session of the seminar as well as in the afternoon discussions. Better emoluments, re-structuring of the recruitment system, etc., are only partial answers to the problem. Unless we find persons who are committed to the task and with a sense of dedication, the objectives of vocational and technical or any kind of education will not be realised. In the final analysis, any system of education should speak out for itself, more so in the case of vocational and technical education.

Mr. Tuladhar has also referred to the lack of co-ordination between industry and vocational and technical training. Industry, being the principal user of the products of vocational and technical institutions, should actively help the latter. In the course of a survey undertaken by some of us for establishing an Institute of Applied Science and Technology, we were disappointed in not getting precise responses from the private and public sectors of industry regarding their manpower requirements. We also learnt that the NIDC, which has advanced several millions of rupees in the form of loans for the establishment of industries, has only made a minimal contribution for financing training. We have several profit making establishments in the country, such as the Nepal Bank, which are in a position to help vocational and technical institutions.

In other developing countries, industries provide substantial sums of money for research and development. The percentage of our population actively engaged in research and development is not known. In 1966, I made a survey for Unesco on "research activities, facilities, personnel needs and interests in Nepal". What is the situation now? This is a matter which has to be looked into.

Mr. Tuladhar has come up with the suggestion on the matter of co-ordination among various technical and vocational institutions. He has proposed that a powerful top level agency be established at the national level to take up all activities relating to the development of vocational and technical training, effectively and efficiently. What sort of body does he have in mind? Is it the Science Policy Organisation, about which we have been talking so much in the past few years, but which we have not been able to sell to HMG so far.

I would like to thank Mr. Tuladhar for his excellent paper.

Panel Comments on Mr. Tuladhar's Paper

By Dr. K.B. Rajbhandary
Principal, Agriculture College
Pulchouk

First of all I like to congratulate Mr. Tuladhar for his excellent paper. He has very vividly brought into focus some of the real problems in vocational and technical training particularly related to Nepal.

Our main concern is to develop this country. For this we need economic growth, agricultural development and so on. Agriculture bears the brunt of the development effort. Agriculture is our main stay. Our economic growth is not possible without agricultural development.

Our basic problem is the lack of development of the human resources. So our first task is to build up human capital. In other words, it means the improvement of education, skills, knowledge, hopefulness and then the attitudes of the people.

Our New Educational Plan provides for vocational education to be an integral part of our general education and will contribute to the general objectives of education. It will contribute to the development in the students of the ability to think and ability to solve the problems efficiently, acquire new skills and techniques. Thus they will be productive. The very aim of vocational education is that students will have some skills and knowledge by the time they enter a vocation.

Mr. Tuladhar has rightly pointed at the lack of a top-level co-ordinating agency. We should have a very effective co-ordinating body. This is essential to avoid the wastage of our limited resources and avoid duplication and at the same time for the maximum utilisation of resources. The New Educational Plan will take care of this.

Another problem he has pointed out is the non-availability of suitable teachers of the right kind. This is a chronic problem. Teachers are badly neglected particularly agriculture teachers. The

teachers get very little incentives. They do not get any recognition and they have very little future prospects. This teaching profession should be made attractive and respectable. Every effort should be made to create this type of attitude or dedication. We should also infuse the idea that not only acquiring knowledge and skills, but also a willingness to work or serve in any part of our country. We must show respect for the work and those who work with their hands have a place in society. Learning by doing should be encouraged.

Regarding lack of interest for vocational and technical training, I would not like to point out that the job should be such that it should be attractive, productive, respectable and also there are prospects for the future.

There is a dearth of text-books and teaching materials. Generally, we all get them from other countries. There are provisions in the New Educational Plan to produce the required text-books and encourage writers to write books.

Lastly, I would like to conclude with the remark that a developing country like Nepal - 93% on agriculture should have more agricultural biased vocational training without replacing the other areas of non-agricultural biased vocational training.

The Role of Industry as a User and Producer of Technically Trained Personnel in Nepal

By

Mr. Juddha Bahadur Shrestha
Chairman
Biratnagar Jute Mill

Introduction

The contribution of industry in using and producing technically trained personnel in Nepal is so little that there is nothing much to write about. Still, I have tried to collect some material suggesting some measures for improvement. As I could not make specific surveys of most of the industries, my observations are based on the Jute and Sugar private-sector industries of Biratnagar with which I am connected. But I believe that the practices, procedures and basic problems of my sample would generally be applicable to other industries as well. As far as my information goes the State-sector industries have a better performance in this regard.

Brief History of Industrial Development

The first organised type of industry can be traced to early 7th century when Nepalese craftsmen of Kathmandu Valley used to cast metal images and export them to Tibet. This metal casting industry still exists and is a source of earning foreign exchange.

The foundation of industry in the modern sense was laid in 1936 with the establishment of the Biratnagar Jute Mill. During the period 1936 to 1950 several industries connected with matches, sugar, plywood, cotton textiles, cigarettes, jute press, rice, oil and other small cottage industries were established.

The period 1950 to 1960, the first decade of our democratic freedom, saw the formulation of First Five Year Plan. The Treaty of Trade and Transit with India was signed. Industrial development was confined to a few match factories, sugar and distillery, Industrial Estate and few Rice and Oil Mills. The Nepal Industrial Development Corporation was established.

The period 1960 to 1970 saw the implementation of Second and Third Economic Plans. The Soviet aided Sugar and Cigarette Factories, Chinese aided Leather Shoes and Brick-Tile Factories, Industrial Estates, Re-Rolling, Agriculture Tools, Straw Board, Jute Press, Stainless Steel Utensils, Synthetic Textiles, and several other industries connected with wood, live-stock, art and handicrafts, paints, cane-bamboo, soap, catechu, fruit-canning, knitting-hosiery and ready-made garments were established during this period.

We have already wasted about 2 years of the current Fourth Plan in estimating our failures in establishing the wrong type of industries in the Third Plan and choosing the right type for the Fourth Plan. But quite recently in response to the call made by His Majesty the King "to work in unision to rally the forces of development" the Government is currently preparing a Two Year Economic Plan.

Factory Legislation

The history of factory legislation in Nepal dates only from 1959 when the first Factory Act was enacted to make proper arrangements in respect to factories and factory workers. The preamble of the Act purports "to maintain peace and tranquillity and ensure the economic welfare of the general public by making suitable arrangements, safety and comfort of factory workers and the settlement of disputes between factory owners and workers". The different chapters of the Act relate to the establishment of factories, power of the Inspector, health, safety, working hours, welfare provisions, wages, duties and punishment.

The Minimum Wages regulation was enforced only in some industries of Biratnagar in 1965. The workers were grouped into four categories: unskilled, semi-skilled, skilled and highly skilled according to their wages and not according to their respective skills on the job. A reference was only made of the prevailing apprenticeship system in some industries and the employers were forced to fix the period of training of a new apprentice at the time of appointment and the employers were given liberty either to appoint him permanently or discharge him after the result of the training.

The Role as a User

The category, strength of employees and number of technically qualified or trained personnel with the minimum and maximum wages of the Jute and Sugar Mills have been shown in Table 1 which will indicate that the number of technically qualified or trained personnel is negligible. In spite of 35 years of existence 67% of the workers at the Jute Mill are still non-Nepalese.

There is no law governing the appointment or recruitment of workers in the industries. A general circular has been issued by the Government wherein the employers have been asked to give preference to Nepalese workers and permission of the government is necessary to appoint Non-Nepalese and dismiss Nepalese workers. But this circular is not effective in practice.

Generally recruitment of non-supervisory unskilled, semi-skilled and skilled workers is done on the basis of experience in the particular skill and physical fitness accompanied by the recommendation of one of the permanent employees. The pre-employment interview is conducted by the Labour Officer and the applicant is appraised of his duties and responsibilities in his job position, the risk involved and the wages he will get. After the successful completion of all the formalities the

Table 1

Biratnagar Jute Mills Ltd.@

Category	Strength of Workers			Number of Technically Qualified/ Trained	Minimum - Maximum Wages per Month in Rupees	
	Nepalese	Non. Nep.	Total			
Technologists/ Engineers	2	2	4	3	1200	2700
Industrial Eng. Technicians	25	33	58	1	350	1050
Skilled Workers	44	176	220	9*	248	350
Semi-Skilled/ Unskilled Workers	848**	1697	2545	25*	158	248
	919	1908	2827	38		
Morang Sugar Mills Ltd.@@						
Technologists/ Engineers	1	1	2	2	800	2100
Industrial/Eng. Technicians	5	8	13	4	350	700
Skilled Workers	21	27	48	NIL	270	300
Semi-Skilled/ Unskilled Workers	295	60	355	8*	165	270

*Trained in local Vocational Training Centre.

**229 have received apprenticeship training in the factory.

@33% of the workers are Nepalese 67% non-Nepalese.

@@77% of the workers are Nepalese 23% non-Nepalese.

name of the candidate is registered as a casual worker. He has to report to the Labour Office daily till he is employed as a substitute worker to fill the temporary vacancy caused by a permanent worker. As there is no chance of getting technically trained hands, generally the relatives of the permanent employees get preference. In the mechanical section, preference is given to the applicants who have completed their training in the local Vocational Training Centre.

Some industries do not observe this lengthy procedure and import skilled labour from India by giving higher wages and better incentives on a contract basis for a certain period. As industry is established almost exclusively on the profit motive, there are employers who do not want to have anything to do with recruiting local people and give opportunities to learn the skills. Retrenchment of permanent workers of any nationality is not possible under the existing circumstances to make room for technically trained local personnel.

An educated young boy would not like to be a craftsman because the profession is looked down in society. I know of a foreman in my Jute Mill who could not persuade his High School passed son to take up the father's profession and was employed by me as a clerk. Parents and children both need to be educated and re-oriented.

Many of the qualified young people who had their education outside Nepal and who have enjoyed the modern amenities of city life are not willing to work in the industries which are generally situated in the hot and humid terai region. We want skilled carpenters, masons, welders, fitters and electricians from the Technical Institutes of the Kathmandu Valley but we are not getting them. The result is that we fill the vacancies with whosoever people we get hold of irrespective of their skill, training and nationality.

Most of the Technical Training Institutes and Centres are located in the Kathmandu Valley, whereas all the industries except two Industrial Estates consisting of small units are located outside the valley. All the auto-mechanics, electricians, mechanics and mechanical draftsmen produced by the Training Institutes and Centres have been absorbed within the Valley itself. The overseers of the Nepal Engineering Institute are mostly employed. The position is such that the industries located outside the valley cannot get the services of the products of these institutions as the turnover is too low compared to the demands of the industries in the country. Moreover the courses offered for training are only meant for machine maintenance and do not meet the demands of the industries to fill-up their requirements of the manufacturing units.

It is high time we examine and analyse how far the wage structure is adequate, what role the newly opened Labour Department of His Majesty's Government can play in recruitment of employees and how closer collaboration between industry and the technical institutions could help in bridging the gulf between the demand for and the supply of the technicians and craftsmen needed by industry. It is not that there is a shortage of personnel at all technical levels. On the one hand there is a serious shortage of skilled craftsmen and technicians and on the other there are

surpluses of technologists and engineers which we are unable to utilise because they are not adaptable to the needs and requirements of industry. The jute mills had to employ cotton textile graduates as jute technicians because there is not a single cotton mill to engage them.

The Role as a Producer

The industries have practically done nothing in this field. However, I would like to mention here some activities of the local Vocational Training Centre, Productivity Council and the Apprenticeship Training programme directly initiated by the Jute Mills.

The Vocational Training Centre was started in 1960 with the help of Mr. W. Powrie, an ILO Expert. The object of the training was to improve the standard of skilled labour for all the factories in the district both in machine operations and machine and tool maintenance and to extend the training for those showing aptitude in order that they may be upgraded either to better work or as charge-hands. Trainees were to be recruited from existing employees of the various mills and not from unemployed people. During training it was obligatory for the employer to pay the trainee his full wages. Encouragement had to be given by the employers by way of increment in wages or upgrading.

Table 2 will show that this Centre has produced 179 successful trainees in about 12 years. Out of this total 124 are working in different factories mostly as semi-skilled workers. The Jute Mill has 2765 skilled and semi-skilled workers and only 34 persons from this Centre have till now been absorbed. I have been given to understand that the low quality of the trained personnel and recruitment by the Centre of non-employees of the factories due to amended regulations are some of the main causes of reluctance shown by the industries to absorb all the successful trainees. This Centre has neither been able to fulfil its objective in respect of starting the training course for machine operation nor has it succeeded in improving the standard of skilled labour required for machine tool maintenance.

The Productivity Council was started in 1963 with financial contribution from local industries. The Council has organised short duration seminars and courses on job method training, supervisory development and productivity promotion. Unfortunately, the activities of the Council is at a stand-still for 5 years and it is high time that something is done to activate it.

Apprenticeship training was started regularly in the Jute Mills in 1962. The result of 10 years, as shown in Table 3, will indicate that out of 717 trainees selected, 200 left the training, 517 completed the course and only 229 got jobs. The Apprenticeship Training of the Jute Mill has not been successful either in quality or quantity due to the following reasons:

1. Selection of trainees was defective,
2. No competent supervisors or trainers were appointed,
3. Ten or 12 weeks training period was too short,
4. No separate equipment or machines were provided to the trainees,
5. After the successful training service was not guaranteed.

Table 2

Vocational Training Centre, Biratnagar

Year	Duration of Course	No. of Successful Candidates	Training Experts
1960	6 Months	8	Mr. W. Powrie (ILO)
1961	"	5	Mr. W. Powrie (ILO)
1962	"	10	Mr. R. Singh (Jute Mill) Mr. S. Pati (Jute Mill)
1963	"	31	Mr. W. Newman (ILO)
1964	"	22	Mr. W. Newman (ILO)
1965	"	19	Mr. M. Pokhrel (Counterpart)
1966	1 Year	11	Mr. P. Neiler (ILO) Mr. M. Pokhrel Mr. P. Basnet
1967	"	16	"
1968	"	12	M/s. Pokhrel/Basnet
1969	"	10	Mr. P. Basnet
1970	"	13	M/s. Joshi, Pokhrel, Basnet
1971	"	22	"
		179	

Out of this total successful trainees, 124 are working in the different local industries.

Table 3

Apprentice Training

Biratnagar Jute Mills Ltd.

Year	Trainees Selected	Left During Training	Successful Trainees	Trainees on the Job
1962/63	97	20	77	
1963/64	92	16	76	
1964/65	40	14	26	
1965/66	20	5	15	112
1966/67	28	7	21	
1967/68	122	31	91	
1968/69	47	13	34	
	446	106	340	112
1969/70	165	51	114	70
1970/71	32	17	15	15
1971/72	74	26	48	32
	717	200	517	229

Normal period of training is 10-12 weeks.
Trainees get Rs.20/- per week as allowance.

We have now come to the conclusion that all other difficulties can be overcome except getting the services of competent supervisors for on-the-job training. Our best machine-man and foreman could not teach the craft to the apprentice because they did not possess the knack of teaching. After giving the apprentices one or two demonstrations to do a particular job, they leave the apprentice alone to learn through trial and error method as they had themselves learnt during their time.

At the lower level a large body of skilled and semi-skilled craftsmen are needed and in the context of the Jute Industry it has been established that the shortage of men in higher grades of knowledge and experience is not so serious as in the case of craftsmen of all types who must be trained not in dozens but in hundreds every year.

The shortage of trained manpower has constituted a serious impediment to fulfil our targets of production which is about 15% less than the expected standard efficiency of the machines in the Jute Mills. Unless an adequate cadre of technically skilled personnel is built up by the industry not only for normal operation but also for new plants which sooner or later will have to replace the old ones. The industry will continue to depend on imported labour and will always be faced with the problems inherent in this kind of dependence.

The training aspect has also been neglected by such an international body like the Asian Development Bank. A loan for Jute Development Project with the foreign exchange cost of U.S. $40,00,000 to be financed by ADB was negotiated and subsidiary loan agreement between HMG and the Jute Mills was signed. In the allocation of loan proceeds the amount for necessary equipment, etc., for the modernisation include the foreign currency cost of installation and training of only four technicians from the two Jute Mills for six months at the machinery manufacturer's headquarters. The training of only two technicians of the Biratnagar Jute Mills which has the strength of 2700 workers mostly without technical training cannot be considered a correct estimate and planning in personnel training to handle new sophisticated machines.

Suggestions

Basically I feel that to impart training and financing such institutions is the responsibility of the Government and providing jobs the responsibility of industry. But the responsibility is so large and the Government resources so meagre that the sharing of this responsibility is a necessity and demand of the time not only of the Government and the industries but also of the international agencies.

The collection of industrial data and information on specific quantity, type and kind of skilled workers and technicians needed by the industries should be the immediate task of the newly opened Labour Department of HMG which should also work as an Employment Exchange for skilled labour and technicians.

Technical Training Institutes or Centres should be opened in all the regions where there are groups of industries employing more than 3000 workers. A group of large industries like two jute mills at Biratnagar with about 4000 employees should be asked to combine and substantially finance such Regional Institutes or Centres.

Industry employing more than 300 workers should compulsorily establish Apprentice Training schemes and provide opportunities and finance required for technical training to their employees. Smaller ones should make arrangements with the Regional Institute to meet their demands of skilled labour without any contribution.

As the government owns and controls a number of large and important industries like jute, sugar and cigarette, state sector industries should give a lead in the matter of training.

A time-limit of not more than 5 years be fixed within which the employers of the existing industries should be asked to replace the imported labour by skilled workers and technicians of Nepalese origin.

Before issuing license to open any new industry the requirements of the skilled personnel in the industry should be ascertained and arrangements made by the Labour Department to meet the demand by imparting necessary training.

To sell the idea of the benefit and importance of technical training programmes and to develop supervisory and managerial ability, management development and training programmes should be conducted regularly.

Conclusion

The holding of this Seminar could be a very opportune occasion to propose solid measures to His Majesty's Government for the solution of the problems of technical training in Nepal. The interest shown by international agencies is not adequate and they should come forward to extend more help. The employers should be more willing to co-operate and contribute. Lastly, I would like to thank the sponsors of this Seminar for giving me the opportunity to exchange ideas with other experienced and expert participants. I wish the Seminar a grand success.

Panel Comments on Mr. Shrestha's Paper 1/

By Mr. G.S. Glaister
Project Manager
Road Feasibility Study, Kupondole

I consider that this Seminar is very timely coming as it does at a stage when His Majesty's Government is exerting every effort to accelerate the pace of development. The pace and economic effectiveness of development depends to a large extent on the quantity and

1/ See Appendix III.

quality of the nation's technologists, technicians and skilled and semi-skilled workmen. The training of this personnel has therefore a direct effect on the implementation of the development programme and its subsequent efficient running.

There are one or two points which I consider should be stressed. There is, in my opinion, a need to clearly differentiate between and define Vocational Education and Vocational Training. There is a tendency to equate the two and to confuse their two distinct functions. Vocational Education is catered for in the National Education Plan at High School Level and above. Vocational Training is catered for in the Plan at Technician Level only. Technological education depends largely on overseas training as at present. The Plan, however, does not appear to cater for Vocational Training at skilled trade level for youths and adults.

If Nepal is to develop an indigenous capability in the construction, maintenance and operation of the infra-structure it must built up a body of labour in the skilled and semi-skilled trades. Vocational training will do this but it is essential and vital that the body of people trained comprises those who will be satisfied with careers as skilled and semi-skilled artisans. Generally speaking this class of person will not be found among successful S.L.C. candidates. The intake to Trade Training Institutes should therefore be from the failed S.L.C. and downwards. Exceptions may have been made in the early years in very highly skilled trades but the general principle is important.

There is a need to keep Trade Training in the right perspective. Skilled labour is a resource input to Industry (and I use Industry in the widest sense as any productive process) and its nature, quality and quantity must be related to the needs of Industry. It should not be thought of as a good in itself isolated from the labour input needs of the community. The inculcation of a vocational attitude of mind is the role of Vocational Education not Vocational Training.

It follows that there is a primary need that the Vocational Training Programme should be closely co-ordinated with the needs of Industry. It follows that Industry must be adequately represented on any body which is responsible for Vocational Training policy and implementation. Labour itself must also be represented on such a body to see that an equitable balance is maintained between the needs of employers and the welfare of the work force. It is suggested that the Ministry of Labour might be considered as providing the correct administrative "climate" to fulfil these functions.

It is most important that instructors of skilled and semi-skilled trades should themselves be skilled. It follows therefore that skilled artisans should be trained to instruct and not the other way round.

There is a need for salary structures to overlap. The technician scale should overlap the technologist scale by about 50% of the time scale with prize appointments beyond the time scale. A completely separate salary structure is necessary for skilled and semi-skilled artisans. It is suggested that this should be pegged to the actual time worked and have provision for productivity incentives. The remuneration of skilled artisans should overlap the technician time scale of salaries.

Panel Comments on Mr. Shrestha's Paper

By Dr. Parasar N. Suwal
Principal, Ananda Kuti College

The title of Mr. Shrestha's paper suggests the role of industry only in using or producing technically trained personnel in Nepal but the contents take care of the case aspects of the problem also viz., the role of industry in aiding the production of such personnel. The observations are restricted to the case of only two mills in Biratnagar but coming from a person of Mr. Shrestha's stature and experience we may accept that the observations are applicable to all the industries in Nepal.

Mention has been made of metal craftsmenship dating back to the 7th century but no mention has been made of local traditional skills. A brief review of the progress of industrialisation of the country has been made and his comments on the choice of the type of industry in the National Development Plan need serious consideration.

The Factory Legislation in Nepal dates from 1959 but it is surprising to note that minimum wages regulation has been enforced in Biratnagar and in a few selected industries only. We do not know the obstacles in implementing such an important regulation in all the industries of Nepal.

We also note that the number of technically qualified personnel is negligible and this has resulted in the production being less, as much as 15% from the expected standard efficiency of machines in the Jute Mills.

A government circular for giving preference to Nepali workers has been found to be ineffective in practice due to various reasons.

It is heartening to note that the industry is established almost exclusively on the profit motive. The tendency of the educated people to shy away from manual work in spite of more remuneration needs consideration.

It has been observed that skilled persons from the Kathmandu Valley do not easily migrate to the terai and in this connection the location of the training institutes and centres need serious

thinking. They may be located most profitably near the sources of employment. It has been observed that, firstly, the turn out from the present limitations is low compared to the demands of the Industry, and secondly, that the actual needs of the industries have not been taken into consideration in devising the training programmes. This disparity in the actual needs must be solved quickly. The Human Resources Division must be more active in analysing the skill needs for different levels and sectors and may be the medium for carrying out a meaningful dialogue between the employers and the trainers. Mr. Shrestha has mentioned the employment of textile technologists in Jute Mills and their performance does not seem to be upto the mark. Perhaps this is a case of individual adjustment as the main process in both cases is the same.

The industry has done practically nothing as the role of producer of trained skilled workers but mention has been made of the local vocational training centre, the Productivity Council that has ceased functioning and the apprenticeship training programme which has not been quite successful for various reasons.

The best part of the paper contains the suggestions put forward. The suggestions are concrete and the suggestion that the industries should shoulder a part of the burden involved in training programme is very welcome.

Lastly, I thank Mr. Shrestha for his excellent paper and the precise and accurate observation in it and the valuable suggestions he has put forward.

Panel Comments on Mr. Shrestha's Paper

By Mr. T.N. Shrestha
Member, Nepal Chambor of Commerce & Industry

I want to express my thanks to the Chairman for giving me this opportunity to speak a few words on Mr. J.B. Shrestha's paper. As I represent the Federation of Nepal Chamber of Commerce and Industry, I share most of the views expressed by Mr. J.B. Shrestha in his excellent paper.

I would like to confine my observations to areas which are not covered by Mr. J.B. Shrestha. Firstly, I would like to dwell on the deplorable state of industries such as metal carving, wood carving and handicraft. There is a serious shortage of skilled people to preserve this traditional and indigenous industry. In fact, this is the industry which produces curios of rare artistic value and which is a tourist attraction and foreign exchange earner. I suggest that the training in skill development in this area should be encouraged.

Coming to the point of factory legislation which aims at maintaining peace and tranquility in the factory, ranging from general welfare of the workers to punishment and settlement of disputes between factory owners and workers, my opinion is that the promulgation of legislation alone will not achieve this aim. The disparities between factory owners and workers will certainly hamper the proper running of the industry and inhibit its progress. It is of primary importance that owners should be able to win the heart of workers and change the psychological environment of the workers by giving them possible facilities and making them understand that the progress of factory will promote their own welfare in particular and national welfare in general. If this realisation comes to them it will help maintain tranquility in factory and also help in boosting production.

Taking the point of industry's role as user of technical manpower in which Mr. Shrestha categorically reflects that technically qualified or trained personnel is neglected and adds that inspite of 35 years of existence of Jute Mills 67% of the workers are still non-Nepalese. It is quite astonishing to find this figure. This reminds me of Mr. Gregorio P. Espinosa's paper where he points out that "local counterparts of right provision should be made to ensure that the expert also report regularly to the recipient government concerned on their performance and the problems encountered". The successful implementation of it will help increase the number of trained Nepalese workers. Mr. Shrestha in his paper remarked "There is industry which is set up solely for profit motive and employers who absolutely do not want to have anything to do with recruiting the local people and give opportunity to develop the skill" I would like to add that this sort of thing should not be encouraged at all. Proper care should be taken both by Government and the concerned agencies.

The Seminar is being organised at the right moment when His Majesty's Government, under the wise and farsighted leadership of His Majesty King Birendra, is introducing the New National Education System which lays special emphasis on vocational and technical training. Besides this, a Two Year Plan is being prepared by H.M.G. which gives opportunities to all investors, foreign and national, for making economic development successful through industrialisation. For this too, we need a lot of technically trained people. This Colombo Plan Seminar on "National Planning of Vocational and Technical Training" will throw light on the necessity of such technicians of all levels to help industrial growth in general. I might add that the area of co-ordination among different Government agencies is also a pertinent field for discussion.

This Seminar is the first of its kind sponsored jointly by His Majesty's Government and Colombo Plan Bureau, which highlights the true spirit of Colombo Plan, 'Planning Prosperity Together'. I earnestly hope that the outcome of this seminar would be fruitful.

In conclusion, I want to draw the attention of all learned and distinguished persons to His Majesty King Birendra's invaluable words "Talk less and Work more".

I wish this Seminar a grand success.

SESSION THREE

Discussion Group Reports

GROUP A

Questions on Mr. Espinosa's Paper

1. What are the major steps that should be taken for the national planning of vocational and technical training in Nepal as a part of the overall development plan?

It was agreed that a long-term vocational and technical training programme be included to be effectively implemented in the overall development plan of Nepal.

Before drafting a new perspective vocational and technical education plan a detailed survey and research should be conducted by the appropriate authorities to find out the level of the labour force available for training and the need of trained personnel for different sectors.

A short-term plan may, however, be made to meet the immediate needs. This should also be prepared by a co-ordinated approach based on the needs of different sectors.

It was suggested that a National Level Council or Committee be formed to co-ordinate the different sectors and levels of vocational and technical education and training.

2. Is there a serious imbalance in the prevailing system of education, with a widespread preference for an academic type of education? If so, what measures can be suggested for changing the vocational and technical education system in Nepal so that a quantitative expansion in the facilities could be effected along with an improvement in the quality and content of education?

It was agreed that there is a serious imbalance in the prevailing education system with a preference for an academic type of education.

It was suggested that a five to seven year plan is insufficient to ensure the supply of vocationally and technically trained personnel so that a long-term perspective plan of at least 10 to 15 years should be drawn up on the basis of a survey and research.

The New Education Plan is intended to produce vocationally oriented persons after they come out of school. In the school they will be using 30 to 40 per cent of their total time for vocational education which will not be sufficient for them for direct employment. So it was suggested that up to Grade 7 the

New Education Plan should be as planned. Commencing with Grade 8 the vocational stream should be made to learn more vocational and technical matters. The percentage of their time devoted in school for vocational and technical education should be increased to 60 per cent. With this intensive training the certificate holders may directly be employed in the jobs for which they are trained for.

The working hours in schools should be increased and holidays cut down.

3. How can external assistance be used effectively in developing vocational and technical training in Nepal without creating a multiplicity of training standards?

As suggested in the New Education Plan, training requirements should be channelled through the National Agency responsible for vocational and technical training. This Agency or Committee should in consultation with the concerned departments decide the types of assistance needed and the standards to be maintained.

Questions on Mr. Thakur's Paper

4. In planning training at the national level, should priority be given to selected sectors of the economy? On what basis should occupations, for which training programmes are to be arranged, be selected?

As the Fourth Plan of the country has already fixed the priorities, it was suggested that the planning of vocational and technical training at the national level should follow the same pattern. The priorities should be such that they are put to the most productive and economic use.

The training programme being planned should take into account the influx of population from the hills to the terai and the opportunities should be suited to the persons available for training who should be put to the best use rather than getting them to revert to traditional agriculture.

5. In planning training, priority should be given to ensuring an adequate supply of qualified and well trained teachers and instructors for training institutions. What steps are considered necessary to achieve this objective?

It was agreed that an adequate supply of trained teachers are needed for the development of vocational and technical training.

Apart from the measures suggested in the New Education Plan, the following steps may be taken to ensure an adequate supply of teachers:

(i) Upgrading the teachers in service through short-term courses, refresher courses, etc., as needed;

(ii) Providing fellowships and stipends for teachers to follow courses in training institutes;

(iii) Providing loan incentives to teachers;

(iv) Encouraging women teachers to teach particularly at primary level;

(v) Providing opportunities for overseas training in specialised subjects.

In the case of vocational and technical teaching, skilled workers should be invited to demonstrate skills and techniques to trainees. The theoretical content should be imparted by regular teachers.

Some way should be found for seeking persons who have an aptitude for teaching but are employed elsewhere and through inducement and incentives they should be made teachers.

As teaching at the primary level is a fairly difficult and important task, teaching at this level should be entrusted to persons who have an adequate knowledge of psychology, child care, etc. For this purpose incentives such as better salaries and conditions of service should be provided.

It was felt that there are a number of teacher educators scattered in different fields so that it would be advisable to create a pool of such persons for training new teachers. In specialised subjects in which the country lacks qualified teachers, persons may be brought in from abroad for short periods.

If a specialised type of training is not possible in Nepal, teacher trainers may be sent abroad for training in such fields.

For specialised vocational and technical training at school level it was suggested that well experienced workers be given training in the methods of teaching so as to enable them to teach in schools.

The teaching profession should be made more prestigious with better opportunities for promotion and enhanced salaries so that suitable persons may be attracted to become teachers and stay in the profession.

6. How can the technical knowledge and skills of retired Gurkha soldiers who have served in the British and Indian Armies be used effectively to improve training programmes in Nepal?

It was agreed that retired soldiers of the British and Indian Armies are well trained and job opportunities should be provided for them in Nepal.

The better trained soldiers should be utilised as teachers in the vocational and technical streams in schools.

Returning soldiers should be provided loans and certain basic training so that they may be able to start small businesses or be self-employed.

Training in horticulture, bee keeping, sericulture and sheep breeding should be provided so that they can be gainfully employed when they return to their homes in the hills after many years of separation from the family.

For vocationally and technically trained persons, recruitment rules of HMG and Public Services Commission should be considerably liberalised without which they can never hope to secure employment in the public sector.

Questions on Mr. Tuladhar's Paper

7. What machinery should be set up at the national, zonal, district and local levels to ensure that the various forms of training in the country are co-ordinated? What role could representatives of industry (employers and workers) play in this regard?

The importance attached to vocational education in the New Education Plan is commendable. But the part that the Plan has left over for the training of adults who are illiterate and the fall-outs from schools is inadequate and should be reconsidered. It was suggested that a separate Central Organisation be set up to look after the different aspects of vocational training for such categories of persons. Such an Organisation could also supervise the training programme for adults.

It is necessary that this aspect of vocational training be separated from the main stream of vocational education as outlined in the Plan and its operations need not fall within the jurisdiction of the University.

The proposed Central Organisation could co-ordinate the various forms of training at the national, zonal, district and local levels.

This Organisation should consist of members of the training profession, representatives of major industries, chambers

of commerce, labour organisations, women and youth organisations, peasant organisations, etc.

8. Is it feasible to establish a higher level technical institution in Nepal at present or should the present arrangements for training graduate engineers and specialised technicians abroad continue?

It was not considered to be appropriate to establish a higher level technical institution in Nepal at present because the immediate needs of the country are for middle level technicians and craftsmen. Thus, the present arrangements for training graduate engineers and specialised technicians abroad may be continued for sometime.

9. How can the planned development of vocational and technical training facilities be effectively linked to a rapid expansion of employment opportunities (including self-employment) particularly in the rural and remote areas?

It was suggested that the craftsmen of the remote areas be given more facilities by way of loans, basic training in designing, standards, colours, etc., so that they may become self-employed. Furthermore, sheep breeding, bee keeping, sericulture, etc., may be other possible areas of development in remote and rural areas.

It was also suggested that with a little training in book-keeping and blue-print reading, it may be possible to create small contractors. Other areas in which training for self-employment would be possible are: the use of small implements, shoe-making, metal craftsmanship, wood carving and driving.

It was felt that an Employment Exchange Bureau should be established as a matter of urgency so that information to both prospective employers and employees could be easily provided.

An institute should be set up for providing training in small business management.

Steps should be taken to utilise fully the existing facilities of vocational training by providing both day and evening sessions along with courses during long vacations so that training could be provided to interested persons.

Questions on Mr. Shrestha's Paper

10. How can industry assist in developing vocational and technical training on a planned basis? Is increased legislation necessary to make industry play a more effective role in vocational and technical training in Nepal or would incentives be preferable? Should a regular apprenticeship training system be introduced here by law?

Industry should co-operate in organising sandwich-type of courses for the development of vocational training.

Industry should also make provision for the employment of training officers who would be responsible for planning training requirements for the company and co-ordinate with the vocational training centres and institutes and other government agencies.

The suggestions made in Mr. Shrestha's Paper are worthy of serious consideration. Training being a matter of vital concern, it was suggested that the government create a common fund for training purposes to which industry (public and private) could contribute a training cess. The salary and wage bill of an industry should be the basis on which the extent of the cess could be determined.

Considering the present rate of industrial growth, it was felt that it was too early to regulate apprenticeship training by legislation. But some of the bigger industries may be induced to have regular apprenticeship programmes.

11. What are the criteria that should determine the location of vocational and technical institutions in Nepal? Should priority be given to particular areas of the country?

Primarily the growth centres prescribed by HMG determine the location of training centres. Further, certain specialised fields require training facilities to be located at places where industries have been established. Some compromise in these priorities should be made.

Keeping in view the growth of different regions, priority for establishing training centres should begin to the eastern sector of the country according to the regional development programme.

12. Is there a stigma attached to manual and skilled work? If so, how can right attitudes and interest towards such work be inculcated, particularly among educated youth?

It was agreed that there is a stigma attached to manual and skilled work of the traditional kind. However, new fields of work do not seem to have it.

It was felt that the vocationally oriented New Education Plan would be of great help in eradicating such attitudes.

It was felt necessary that the attitudes of teachers should be changed and made conducive to the ideals of the New Plan. Ultimately, it is the teachers who would carry the main burden for creating new attitudes.

GROUP B

Questions on Mr. Espinosa's Paper

1. What are the major steps that should be taken for the national planning of vocational and technical training in Nepal as a part of the overall development plan?

It was felt that vocational education in the past did not get its proper share of attention in Nepal and that the New Education Plan goes someway towards remedying this situation. The introduction of vocational education into the secondary schools at the 8th, 9th and 10th classes is a step in the right direction. However, the weightage given to vocational education in the secondary stages would not lead to the development of requisite skills.

If the goal of changing attitudes towards manual work and the philosophy of "the dignity of labour" is to be popularised, pre-vocational education at the middle school level must be emphasised and given proper attention.

Because of the heavy drop-out rate after primary school, some attempts at pre-vocational education should be made at the primary level.

The general concepts of manpower development and the difference between manpower education and manpower training were also discussed.

2. Is there a serious imbalance in the prevailing system of education, with a widespread preference for an academic type of education? If so, what measures can be suggested for changing the vocational and technical education system in Nepal so that a quantitative expansion in the facilities could be effected along with an improvement in the quality and content of education?

For the present a compromise between quantitative and qualitative expansion must be reached. At the same time it was felt that the very short term (three months) of training of teachers is inadequate.

If skilled workers are to be used as teachers, they must be adequately compensated with both money and prestige.

The training of the right type of teachers was emphasised. Unless there is a radical change in the method of recruitment and promotion, teachers of the right quality would not be recruited and retained in the profession. The apathy of most people towards vocational training is in some measure due to the poor quality of the products of these institutions.

With the existing arrangements and facilities, the number of teachers that could be provided for various kinds of vocational and technical schools would be inadequate to meet the requirements of the New Plan. Crash programmes for the training of teachers were suggested but the consensus of opinion was that it was only by providing better incentives, emoluments, fringe benefits and future prospects can the teaching profession be made attractive.

Training and re-training programmes are of equal importance. Government subsidies for those pursuing vocational and technical professions can be progressively reduced if the teachers would have job satisfaction. The present tendency to limit opportunities for reaching the higher categories of service to those who have degrees should be abandoned.

A careful appraisal of the existing facilities is essential for the planning of training. Schools should conduct a self-evaluating programme.

Private enterprises can help schools in orienting their training as well as the employment programmes in accordance with actual needs of industry.

Teachers should be job oriented and not career oriented.

3. How can external assistance be used effectively in developing vocational and technical training in Nepal without creating a multiplicity of training standards?

The association of foreign experts in curriculum planning leads to a certain degree of unrealistic results. Local personnel should take the initiative in the matter of the formulation of plans. This, however, does not mean that foreign expertise is not needed. On the contrary, new ideas and an exchange of know-how all have an important role to play.

Questions on Mr. Thakur's Paper

4. In planning training at the national level, should priority be given to selected sectors of the economy? On what basis should occupations, for which training programmes are to be arranged, be selected?

The very concept of planning implies the determination of priorities. Fixing of priorities is the outcome of many factors - economic goals, social objectives, etc.

It was felt that when the priority sectors are identified there remains the need for effective co-ordination. This was exemplified by taking the case of agriculture which in the decades to come would remain the principal sector in the national economy. But to develop agriculture not only are institutional

education and training important, but health, engineering, irrigation, chemical industries, etc., as well. This calls for development of a number of sectors that are interdependent.

5. In planning training, priority should be given to ensuring an adequate supply of qualified and well trained teachers and instructors for training institutions. What steps are considered necessary to achieve this objective?

The existing facilities for education and training are insufficient and need to be expanded. Apart from the use of formal institutions, the facilities available in industrial establishments and generalised type of institutions should be utilised.

6. How can the technical knowledge and skills of retired Gurkha soldiers who have served in the British and Indian Armies be used effectively to improve training programmes in Nepal?

The type of training received by Gurkha soldiers is of limited utility. The main difficulty arises out of the fact that they have a poor academic background which limits them in utilising their training to the fullest extent. With a programme of re-training, they can be put to more effective use. It was also felt that retired soldiers are not too keen to go in for re-training.

Questions on Mr. Tuladhar's Paper

7. What machinery should be set up at the national, zonal, district and local levels to ensure that the various forms of training in the country are co-ordinated? What role could representatives of industry (employers and workers) play in this regard?

There is a specific need for a co-ordinating body to guide and assess vocational education and training needs throughout the nation. This could be a "National Co-ordinating Council for Vocational Training" which will advise the government on all aspects of training for technicians throughout the country, in-school as well as out of school.

It was also felt that there should be a "bureau" of vocational education within the Ministry of Education. Such a bureau would be charged with all aspects of vocational education in the school system and could possibly be attached to the technical division of the Ministry.

8. Is it feasible to establish a higher level technical institution in Nepal at present or should the present arrangements for training graduate engineers and specialised technicians abroad continue?

It appears that for the immediate future certain kinds of high level technician training will have to be done abroad. However, all middle level training facilities should be developed in Nepal and an in-depth manpower survey could be initiated to determine the actual needs for technical manpower. Training of any Nepalese abroad should be carefully monitored in order to ensure that the training is really relevant to the needs of the economy and steps should be taken to enable individuals trained abroad to be provided employment commensurate with their training on their return to Nepal. In course of time all training should be provided in Nepal.

Questions on Mr. Shrestha's Paper

10. How can industry assist in developing vocational and technical training on a planned basis? Is increased legislation necessary to make industry play a more effective role in vocational and technical training in Nepal or would incentives be preferable? Should a regular apprenticeship training system be introduced here by law?

Industry can provide apprenticeship training and on-the-job training in an organised way along with job experience. Further, investigation of possible legal means by which apprenticeships are instituted by relevant industries would be desirable.

Another method by which industry can assist in the training of skilled personnel is the one under trial at the College of Agriculture at present and this method is worthy of consideration. Under this method, the prospective users of the products of vocational training participate in the cost of educating the trainees by offering scholarships to several students. For example, the cigarette factory in Janakpur would provide stipends for several of the future JTAS being trained by the College of Agriculture.

11. What are the criteria that should determine the location of vocational and technical institutions in Nepal? Should priority be given to particular areas of the country?

The location of vocational and technical training institutions should be governed by careful feasibility studies. The primary criteria should be the availability of local resources and the national plans for regional development. At the present time there are industrial estates in Dharan, Bhairawa and Nepalganj. The requirement for semi-skilled and skilled workers may be high in these areas and careful consideration should be given

to placing training facilities near such estates. Local people would thereby be recruited as students and the local economy would be stimulated.

12. Is there a stigma attached to manual and skilled work? If so, how can right attitudes and interest towards such work be inculcated, particularly among educated youth?

There is little disagreement on the view that there is a degree of stigma attached to manual work among the educated young. The New Education Plan will go a long way towards changing this attitude. However, accompanying an attempt to change people's attitudes in the schools system there must also be adequate incentives for such labour, a new attitude of employers, recognition of work and adequate job opportunities.

GROUP C

Questions on Mr. Espinosa's Paper

1. What are the major steps that should be taken for the national planning of vocational and technical training in Nepal as a part of the overall development plan?

The national planning of vocational and technical training in Nepal is an important part of the total revision and co-ordination of education initiated under the wise direction of His Late Majesty King Mahendra and under the most able leadership of His Majesty King Birendra Bir Bikram Shah Dev. Implementation of the New Plan provides for three phases: Phase I - placing ultimate responsibility in a designated body, the University, for formulating and implementing training policies; Phase II - surveying and identifying the total resources available in Nepal for vocational and technical training; and Phase III - co-ordinating the use of training resources in a system of established quotas and levels of skills to be achieved.

A major step in this overall development is the precise definition of the particular vocations to be offered and the levels of skills to be achieved in each vocation. These definitions must be expressed in terms of measurable training objectives and in categories of titles that are clearly stated and commonly accepted. The formulation of these definitions is a burdensome and time consuming task but basically important to the effective operation of the proposed Plan. Assistance is available from references such as the ILO Standard Classification of Occupations.

As a means of supporting a more effective programme in national development concerning training needs, we recommend the adoption of a time-bound programme with adequate provision for updating and continuation of planning and programming.

Recognising the broad spectrum of concerns and the urgent need for constant communication with all sectors of the economy employing skilled people, it was strongly recommended to the University that an Advisory Board composed of representatives from industry, other sectors of the economy, the Human Resources Division of the Planning Commission and from the training facilities involved, be appointed to perform the function of communication and assisting the University in considering possible ways of resolving problems concerning training.

To summarise the major steps: within a framework of both long-term and short-term objectives, the economic planners of HMG Nepal will select the sectors of employment where training emphasis shall be given priority and for what periods.

The Human Resources Division will present a projection of the total manpower needs, including all available data from the private sector, required to implement the objectives set by the economic planners. These manpower needs should be described in terms of critical skills in identified trades and acceptable levels of performance.

In order to produce these critical skills, the necessary training curricula and training standards must be developed and adopted. The present resources in Nepal for implementing the curricula must be mobilised and an estimate presented of additional resources required. These resources include both plant and personnel.

The programme to be implemented must be finalised and adopted. The training facilities authorised to perform these functions must be identified and recognised.

An Advisory Board representing the several areas involved in the supply and utilisation of skilled manpower must be established to function in the critical areas of communication and discussion between several parties involved.

2. <u>Is there a serious imbalance in the prevailing system of education, with a widespread preference for an academic type of education? If so, what measures can be suggested for changing the vocational and technical education system in Nepal so that a quantitative expansion in the facilities could be effected along with an improvement in the quality and content of education?</u>

The New Education Plan makes significant provision for redirecting the training of manpower to overcome the imbalance that has prevailed.

For the purpose of encouraging capable manpower to opt for technical training it was recommended that urgent attention be given to a radical revision of the present system of remuneration for workers, facilities be found for more adequate social acceptance and recognition of persons in technical appointments.

Ample opportunities must be provided for capable workers to obtain promotions in employment which suitably reflect their abilities and performance. Adequate opportunity must be offered for intellectually qualified workers to continue in higher levels of education when they are able to meet reasonable qualifications and are personally motivated to continue such training.

Serious consideration should be given to stimulating technical trainees to a higher level of achievement by establishing a national system of competition and awards for work performance.

3. How can external assistance be used effectively in developing vocational and technical training in Nepal without creating a multiplicity of training standards?

The regularisation of training standards is very important and control must be maintained by the co-ordinating authority. Offers from potential donors to assist in developing training resources are needed and greatly appreciated. It is imperative that such assistance be accepted within the structure of standards adopted for all programmes.

Questions on Mr. Thakur's Paper

4. In planning training at the national level, should priority be given to selected sectors of the economy? On what basis should occupations, for which training programmes are to be arranged, be selected?

The allocation of priorities to selected sectors is a matter closely related to question 1. The selection of training priorities must be closely co-ordinated with production needs and targets.

The procurement and preparation of technical teaching personnel are critical factors in establishing the success of these ambitious plans. There is an immediate and urgent need to make larger use of regional facilities or external assistance in the preparation of better teachers.

The procurement process could be strengthened by the adoption of specific descriptions of suitable candidates for selection and training as teaching personnel.

5. In planning training, priority should be given to ensuring an adequate supply of qualified and well trained teachers and instructors for training institutions. What steps are considered necessary to achieve this objective?

To obtain an adequate supply of teaching personnel a necessary step is the precise definition of the personnel to be recruited. Not only must the description of qualities be as precise as possible but the titles and special terms must be clearly and commonly understood.

An adequate supply implies satisfactory teaching skills and it was emphasised that such personnel should possess sufficient experience and competence in the manual skills to be taught.

Special efforts must be directed to the further development of facilities in Nepal for adequate training of teacher trainees and the additional training of teachers. These efforts should be supplemented by the use of external facilities wherever appropriate.

6. How can the technical knowledge and skills of retired Gurkha soldiers who have served in the British and Indian Armies be used effectively to improve training programmes in Nepal?

With a view to using the skills of retired Gurkha servicemen it was recommended that the District Education Committees be advised to survey the retired personnel in each district and explore the possibilities for appointments. Some modification of qualifications for appointment will be necessary to make the proposal practical.

Questions on Mr. Tuladhar's Paper

7. What machinery should be set up at the national, zonal, district and local levels to ensure that the various forms of training in the country are co-ordinated? What role could representatives of industry (employers and workers) play in this regard?

Co-ordination of the various forms of training in the country can be achieved by (a) the University and its Advisory Board at the national level and (b) a Zonal Advisory Board composed of representatives from the local campus faculties and from local industry. It was also recommended that union representatives should be on the Zonal Board.

The representatives of employers and workers through regular and active participation on the Zonal Board could broaden the perspectives of the Board, contribute vital information when formulating recommendations and also convey to the local community reliable reports concerning the activities and plans of the local training centre.

8. Is it feasible to establish a higher level technical institution in Nepal at present or should the present arrangements for training graduate engineers and specialised technicians abroad continue?

It was recommended that the preparation of plans for such an institution be continued but that implementation of such plans be based on the requisite growth in the scale of the economy perhaps as early as during the Fifth Plan period. Selection of the institutions to be established should also be in agreement with the national development priorities adopted.

9. How can the planned development of vocational and technical training facilities be effectively linked to a rapid expansion of employment opportunities (including self-employment) particularly in the rural and remote areas?

Plans for the development of training facilities particularly in the rural and remote areas should include provision for:

(i) The survey of potential job opportunities in these areas;

(ii) The initiation of new programmes or the modification of existing programmes for training people of these areas in new or important skills required for performance in the potential jobs.

(iii) Establishing a co-operative society or other suitable organisation performing purchasing and marketing functions for these small or dispersed groups of self-employed producers.

Implementation of the above proposals should be on a project basis under the primary responsibility of the Agriculture Department (Extension Services), HMG, with the collaboration of UN/FAO representatives and the Remote Areas Development Committee, HMG. The Cottage Industries Department, HMG, local schools and extension activities of any local campus for vocational and technical training might also be involved.

Questions on Mr. Shrestha's Paper

10. How can industry assist in developing vocational and technical training on a planned basis? Is increased legislation necessary to make industry play a more effective role in vocational and technical training in Nepal or would incentives be preferable? Should a regular apprenticeship training system be introduced here by law?

Industry can and should assist the planned development of vocational and technical training by (a) participation in the formulation of plans and (b) sharing the financial burden of training. HMG should enact suitable legislation regulating these matters.

HMG should use certain incentives to encourage the co-operation of employers in developing training and bearing the cost. Such incentives should take the form of tax concessions on the recognised amount spent by the employers on training or a tax rebate up to the amount recognised as spent on training.

The group supports the suggestions contained in Mr. Shrestha's Working Paper.

11. What are the criteria that should determine the location of vocational and technical institutions in Nepal? Should priority be given to particular areas of the country?

The criteria for determining the location of vocational and technical institutions in Nepal will be based in large measure on the allocation of priorities and the adoption of targets in the basic planning process. In addition, due consideration must be given to the particular manpower requirements of the several zones regarding both training local manpower for employment as well as training to meet the industrial demands for production.

The types of training to be offered in any particular centre should be determined by the skill requirements of the geographical area concerned.

12. Is there a stigma attached to manual and skilled work? If so, how can right attitudes and interest towards such work be inculcated, particularly among educated youth?

It was recognised that manual and skilled work are widely considered to be socially inferior and without satisfactory opportunities for occupational advancement or increased financial return. The occupational and financial aspects can and must be dealt with immediately. The social aspects will be changed only as a result of the changes accomplished in the occupational and financial conditions for this sector of the population.

CONCLUDING SESSION

CLOSING ADDRESS

By

Honourable Krishna Raj Aryal
Minister of State for Education

It was indeed a pleasure to be with you this morning and to listen to your interesting discussion. I am particularly happy because of the opportunity provided to me to meet the distinguished participants attending this Seminar. On behalf of HMG I would like to express my deep appreciation to the Director of the Colombo Plan Bureau who was gracious enough to select my country for the purpose of holding this Seminar. I would also like to extend my deep esteem and appreciation to all the participants, particularly the foreign delegates, for making this Seminar a success.

I will reflect on the Report of the Seminar in some detail in course of time but from whatever knowledge I have gathered I am pretty sure that this meeting with its valuable suggestions has indeed added greatly to Nepalese Education and provided useful experience to the University authorities and also to the Government who have to play a vital role in the actual implementation of our new Education Plan.

With your permission, Mr. Chairman, I would like to draw the attention of our learned participants to a slight difference in the title of this Seminar. "Technical and Vocational Training" and the spirit of our new Education Plan which clearly believes in Technical and Vocational Education. At this stage, we give more emphasis to "education" than to "training" because we are in a stage in which we have to educate the educators, parents, students and the public about the importance of training and of the dignity of labour and of the economic and social implications of the word "training". In the meantime, we cannot postpone the process of providing vocational and technical education till we educate the whole society about its importance.

This is a problematic situation and we believe very strongly that we can gain success only when we are guided by the needs of our own society, the demands of our own time and the capabilities and resources of our own country and people. Our general needs are:

(1) Conditions for a good life.

(2) Equal opportunity for work and earning money.

(3) Conditions for social equality and social opportunities.

(4) Conditions for the growth of a proper attitude, of refining the values of life and the conditions of living.

(5) Conditions for developing proper relations with neighbours, countrymen and nations of the world at large.

(6) Conditions for the limitation of corruption, injustice, oppression and "red tape".

(7) Conditions conducive to the development of individual personality, national prosperity and international co-operation.

In the light of past discussions, the need of education in Nepal today appears to be:

(1) Planning education for economic development.

(2) Planning education to achieve a good social order.

(3) Planning education for the preservation and transplantation of our national cultural heritage.

(4) Creation of an environment in the existing and emerging educational institutions which might in turn bring the above discussed general national needs into reality and create conditions as described therein.

(5) Complete reconstruction of the existing educational institutions to fulfil the broader national objectives.

It is natural for citizens of developing countries to be sometimes over ambitious.... I find myself in disagreement with some of the advisers working in this country, not all of whom are from international agencies and from other friendly nations. I do not always agree even with some of our own experts. I would like to make it clear, however, that I am not expressing my views regarding the recommendations made by this Seminar, for which a great deal of thought has been given. We must make a humble beginning looking at our own situation, realising our own limitations and depending on our own resources rather than only looking at the highly developed and technically advanced countries.

I would like to assure you, Mr. Chairman, that I am not pleading against qualitative improvement. I am only trying to place before you the truth and the reality. In fact all our efforts are directed towards

qualitative and quantitative improvement. Throughout the world men aspire for more development, for more advancement and for more progress. Our problems predominantly reflect poverty, ignorance and lack of development consciousness. I would like to remind you about the U.N. Conference on Human Environment held in Stockholm, which is closely related with development, training and education. I would also like you to think of the problems we are trying to solve in our situation in Nepal.

I believe that we have got to give a great deal of thought and become really acquainted with our own problems before we can work earnestly for uplifting our subsistence level economy. With your permission, Mr. Chairman, I would like to thank once again the Director of the Colombo Plan Bureau, the distinguished delegates and all others who have contributed to make this Seminar a success. Finally, I wish you good luck and all success in your life and career.

TEXT OF FINAL STATEMENT

1. The Seminar on "National Planning of Vocational and Technical Training", jointly sponsored by His Majesty's Government of Nepal and the Colombo Plan Bureau, was held at the Hotel Soaltee Oberoi, Kathmandu, from 12 to 15 June 1972. The Seminar was inaugurated by the Honourable Gyanendra Bahadur Karki, Minister for Foreign Affairs and Education, in the presence of a distinguished gathering consisting of members of the diplomatic corps, secretaries of various ministries and other senior government officials. Dr. Harka Gurung, Member, National Planning Commission, chaired the Inaugural Session and one of the Plenary Sessions of the Seminar, with Brigadier General A.B. Connelly, Director, Colombo Plan Bureau, and Mr. S.B. Shakya, Acting Rector, Tribhuvan University, serving as Co-Chairmen. The Seminar closed with an Address by the Honourable Krishna Raj Aryal, Minister of State for Education.

2. The Seminar was attended by fifty two participants representing government agencies, the university, technical education, management development institutions and industry and including a few foreign experts working in the country. The following working papers provided the basis for the discussions at the Seminar:

I. "The Basic Elements in a National Plan for Vocational and Technical Training"

By Mr. Gregorio P. Espinosa, Adviser on Intra-Regional Training, Colombo Plan Bureau.

II. "Manpower Requirements in Planning Vocational and Technical Training in Nepal"

By Mr. H.N. Thakur, Chief, Human Resources Division, National Planning Commission Secretariat.

III. "Problems in Planning Vocational and Technical Training in Nepal"

By Mr. K.R. Tuladhar, Principal, Nepal Engineering Institute.

IV. "The Role of Industry as a User and Producer of Technically Trained Personnel in Nepal"

By Mr. J.B. Shrestha, Chairman, Biratnagar Jute Mills.

3. Discussions at the Seminar were initiated on each of the Working Papers by the following Panel Speakers:

(i) Mr. B.B. Pradhan, Secretary, Ministry of Finance, and Mr. P.G. Caswell, ILO Project Manager, Nepal Engineering Institute.

(ii) Dr. N.K. Shah, Chief of Epidemiology, Department of Health Services, and Mr. Pashupati Shumshere J.B. Rana, Executive Director, Centre for Economic Development and Administration.

(iii) Dr. D.D. Bhatt, Prof. & Head of the Department of Botany, Tri-Chandra College, and Dr. K.B. Rajbhandary, Principal, Agriculture College.

(iv) Mr. G.S. Glaister, Project Manager, Road Feasibility Study, Dr. P.N. Suwal, Principal, Ananda Kuti College, and Mr. T.N. Shrestha of the F.N.C.C.I.

4. The Honourable Minister for Foreign Affairs and Education, in his Inaugural Address, referred to the new Plan for reforming the educational system of the country being implemented by His Majesty's Government under which great stress is to be placed on vocational education at the school level with an expansion of technical education at the higher levels. It is expected that the Plan will produce the trained and skilled manpower needed for the overall development of the country, a call for which has been made by His Majesty King Birendra Bir Bikram Shah Deva.

5. The Seminar recommends the following measures for consideration by His Majesty's Government for appropriate action:

(i) The preparation of a perspective plan for vocational and technical education and training by the National Planning Commission based on a comprehensive survey of manpower requirements and facilities, both existing and planned.

(ii) The early establishment of a high level National Advisory Council for Vocational and Technical Education and Training to advise HMG on all matters relating to vocational and technical education and training in the country. The Council should consist of representatives of the university and the public and private sectors.

(iii) The New Education Plan is only sufficient to provide vocational orientation at the school level. It is understood that there is a distinction between vocational education and training.* If skilled workers are to be produced additional training in other institutions will be required at all levels of school leaving. It is suggested that such training be under the Department of Labour.

(iv) The proposed National Advisory Council should be assigned responsibility for co-ordinating the flow of external assistance for the development of vocational and technical education and training with a view to maintaining national standards.

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*Mr. John Marsh, Director of the British Institute of Management has defined 'EDUCATION as the process of keeping man's mind open to new knowledge, Learning as the search for knowledge, TRAINING as the process of imparting skills to man, and, equally important, keeping skills up to date by re-training'. (See Mr. Tula Nar's Working Paper).

(v) In planning vocational and technical education and training, priorities should in general conform to the sectoral priorities laid down in the economic development plan.

(vi) To ensure an adequate supply of qualified and well trained teachers and instructors for education and training institutions:

(a) Efforts should be made to ensure that teachers and instructors are skilled in their trades prior to receiving teacher training;

(b) They should be encouraged to enter the teaching profession by higher emoluments, opportunities for promotion and career development, better working conditions and greater prestige;

(c) As well qualified teachers are not available, greater use should be made of external training opportunities (including Colombo Plan regional facilities); Greater use should also be made of external assistance to build up teacher training facilities within the country;

(d) Efforts should be made to encourage qualified women to accept vocational teaching appointments;

(e) Retired soldiers who have been well trained in a trade should be used as instructors in the vocational and technical streams of training establishments. The rules for public employment should be liberalised.

(vii) To effectively link the planned development of vocational and technical training facilities to a rapid expansion of employment opportunities (including self-employment) in the rural and remote areas, provision should be made for:

(a) A survey of potential job opportunities related to the local resources available;

(b) Expanded use of the training facilities provided by the various government agencies, local schools, and institutes, beyond normal hours;

(c) The creation of courses in small business practice to develop small-scale business, e.g. contractors in construction, transportation, maintenance and repair and wholesale and retail trading; and

(d) Easier credit and marketing facilities.

(viii) Legislation be introduced to levy a training cess on industry for supporting vocational and technical education and training in accordance with the wage bill of each industrial concern, both public and private. However, in the case of industries providing recognised training programmes, provision may be made for the rebate of the training cess.

6. The Seminar recommends that industries (both the public and private sectors) should play a greater role in developing vocational and technical training by:

(i) The public sector taking a lead in promoting vocational and technical training;

(ii) Appointing in each industrial establishment an officer responsible for training to plan its training programme and to liaise with the Zonal Education Committee and the Regional Office of the Labour Department in co-ordinating training activities;

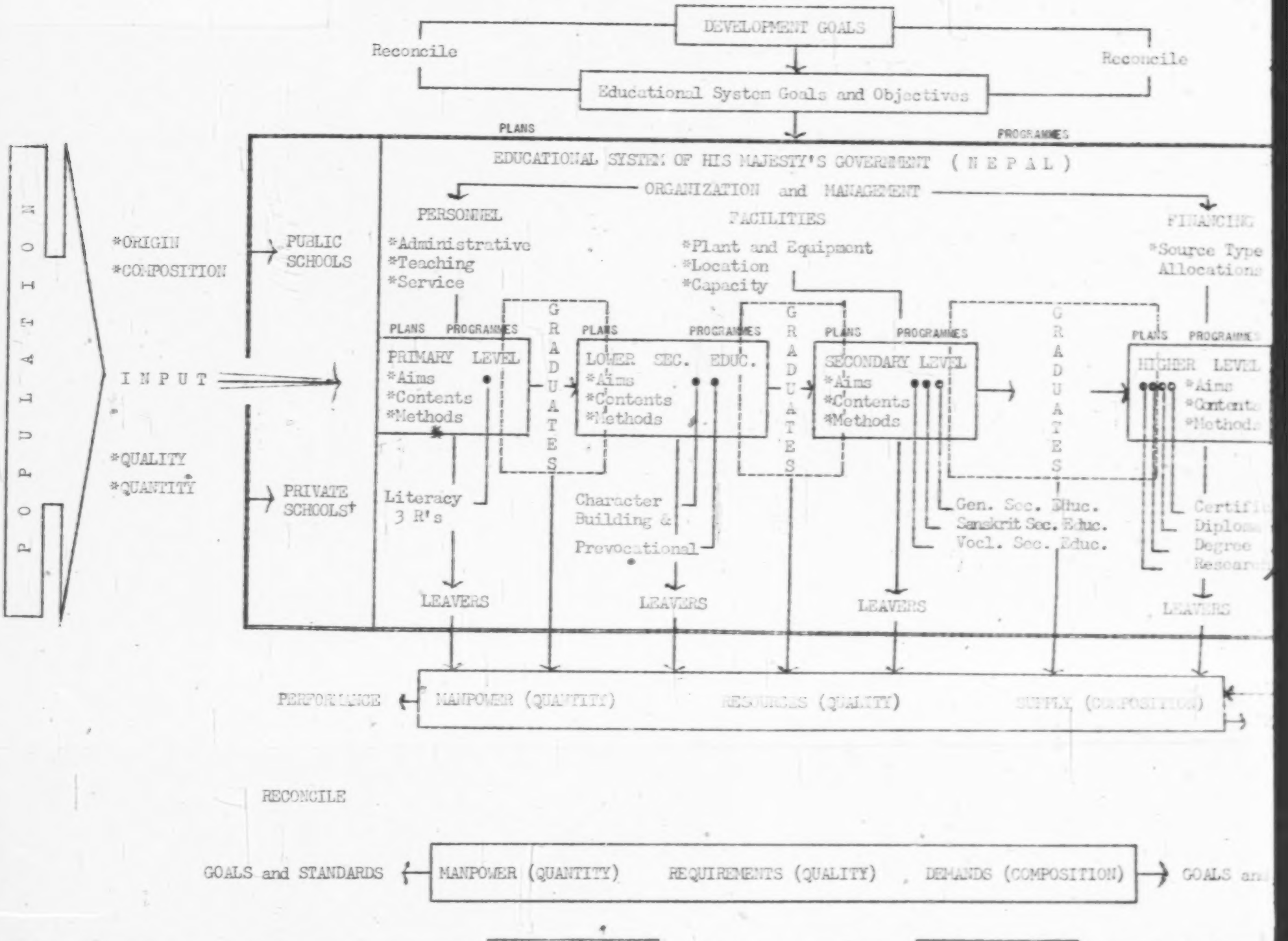
(iii) Contributing to the Scholarship Fund of educational institutions; and

(iv) Adopting standard job descriptions such as that provided by the ILO's International Standard Classification of Occupations.

7. The Seminar took note of and supports HMG's aim to consolidate vocational and technical education and training at the middle and lower levels for the present. However, the feasibility of providing advanced level technical courses should be further explored in the proposed perspective plan.

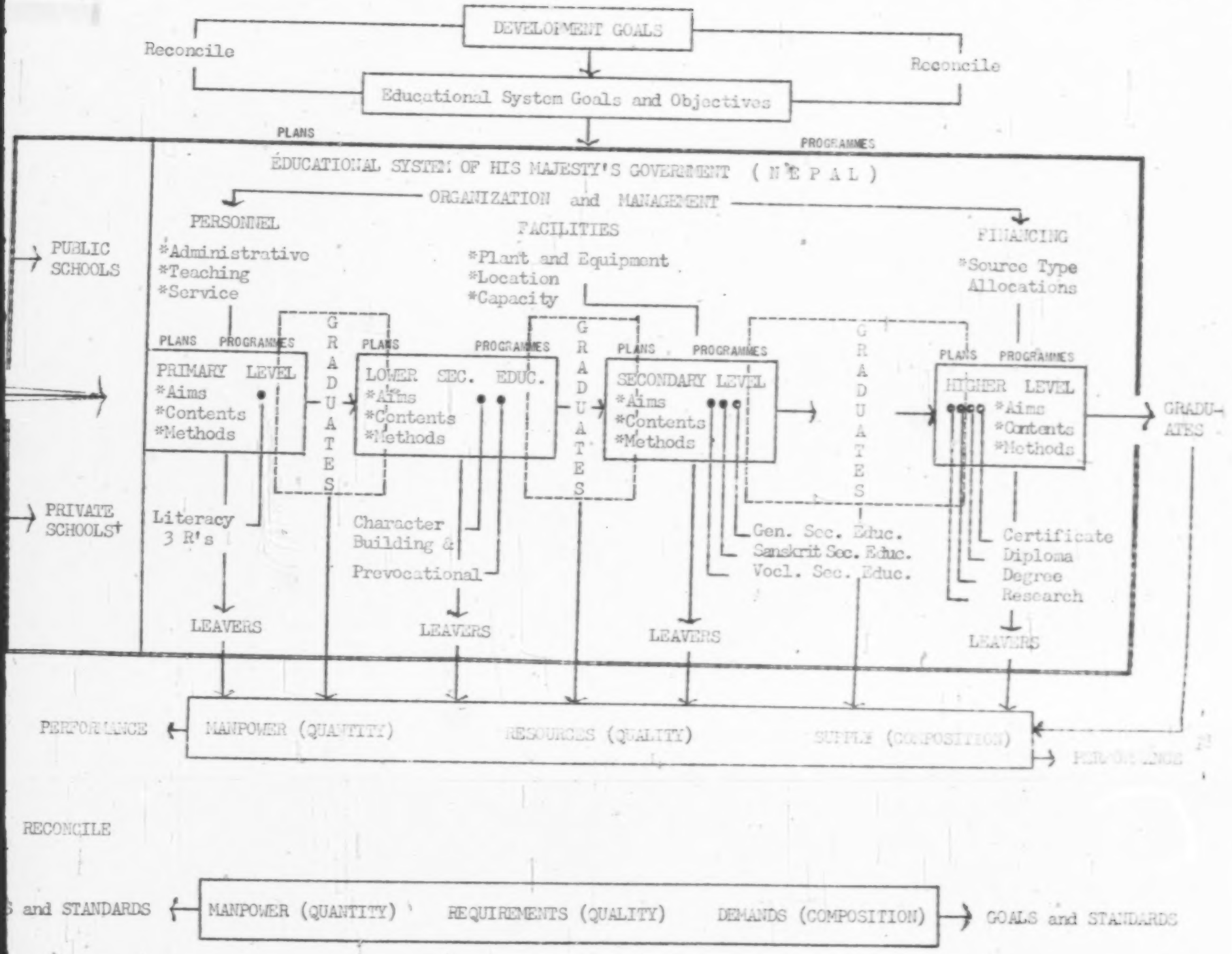
8. It is most important that the right attitudes towards manual and skilled work be inculcated in the teachers so that they may set a good example to the youth of the country.

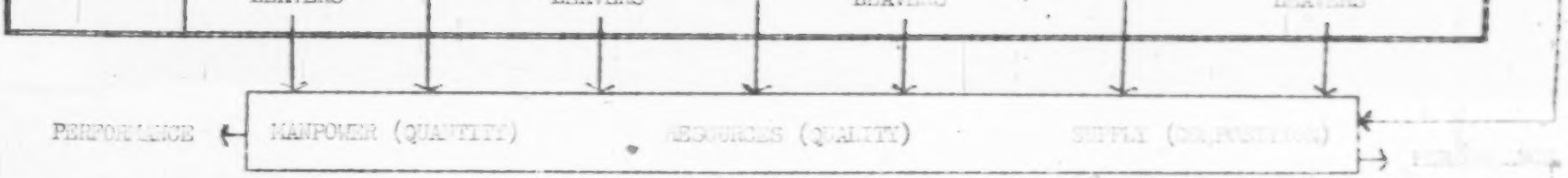
SYSTEMS VIEW OF EDUCATION



SYSTEMS VIEW OF EDUCATION

Appendix I





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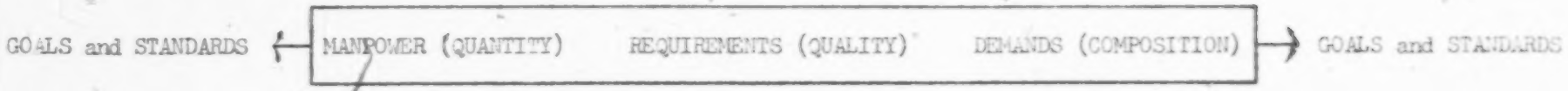

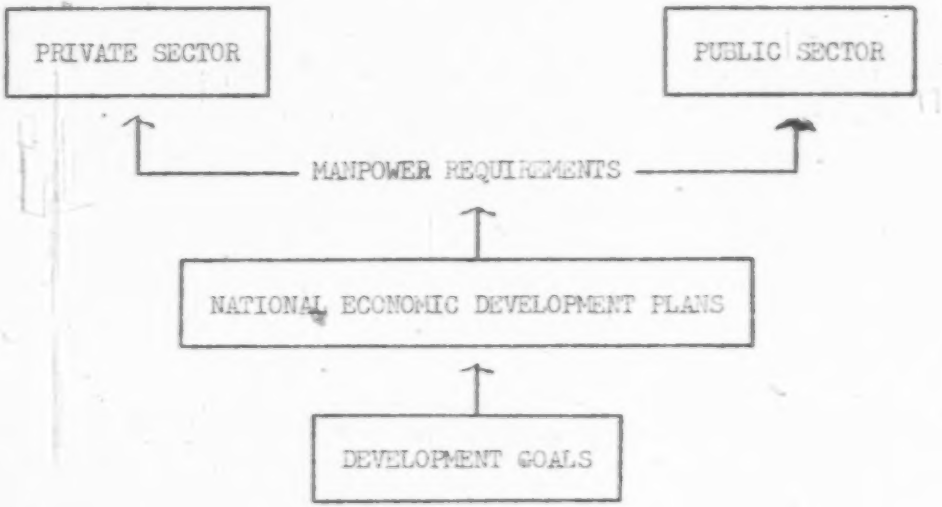

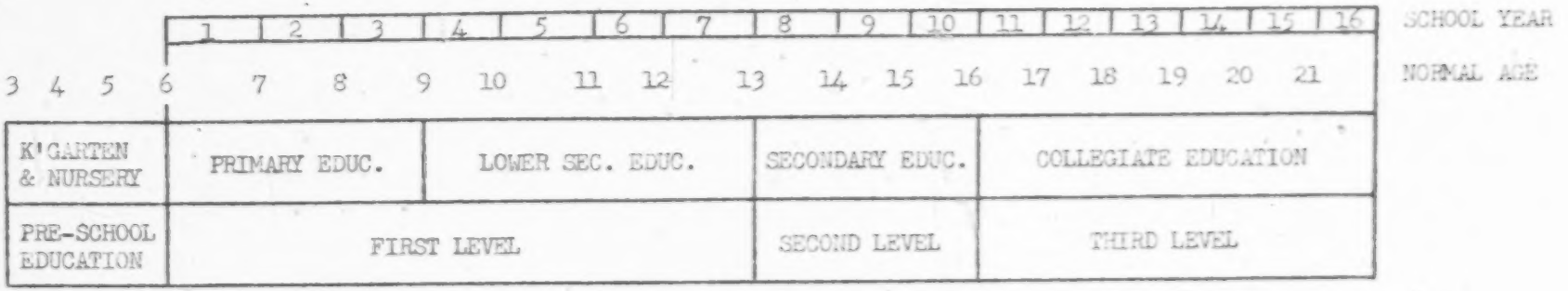
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LOWER SEC. EDUC.
SECONDARY EDUC.
COLLEGIATE EDUCATION
PRE-SCHOOL EDUCATION
FIRST LEVEL
SECOND LEVEL
THIRD LEVEL

†There will be no private and missionary schools except those that operate according to the new National Education System.

Prepared for Nepal Seminar
on Vocational & Technical Training

BACKGROUND PAPER Appendix II

FINAL REPORT OF THE ILO ASIAN REGIONAL EXPERT MEETING ON VOCATIONAL TRAINING PLANNING*

Sydney, December 1968

A. General Considerations

The vocational training systems of Asian countries have, as a rule, grown and developed over the last two decades under the pressure of persistent shortages of skilled workers, competent supervisors and other technical staff requiring practical training and experience. A large number of technical and vocational schools and training centres have been established in most of these countries; apprenticeship schemes have been further developed or introduced in some countries; many other actions have been taken with a view to providing modern technical skill and knowledge to increasing numbers of young people and adults in the region.

The growth pattern has generally been uneven. Large numbers of young people growing up in rural or urban areas do not yet have access to adequate facilities for developing their aptitudes and preparing for employment. Skill shortages are hampering economic development.

The formulation and implementation of active employment promotion programmes in the Asian countries, as recommended by the Sixth Asian Regional Conference of the International Labour Organisation (Tokyo, 1968) will involve further development, improvement and expansion of the training systems of the countries in the region. These countries will need to prepare and implement long-term plans for increasing the numbers trained in rural areas, for broadening the systems of training to cover a wider range of occupations and for raising the quality of training.

Plans for vocational training development are a vital part of the national development plans of the countries concerned. More specifically, they should be closely integrated with economic and manpower development plans, as well as with plans for employment promotion and expansion, where these exist.

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*This is the report on the Asian Regional Expert Meeting on Vocational Training Planning conducted by the International Labour Office in Sydney, December 1968, and was reproduced through the courtesy of the International Labour Office, Geneva. It was not presented at the Seminar but was intended to provide background reading in preparation for it.

Planning for the development of vocational training should begin with a realistic assessment of the effectiveness and efficiency of existing training facilities and programmes with a view to determining:

(a) the extent to which skilled worker shortages may be explained by deficiencies in the present system of training;

(b) the extent to which the skill and knowledge taught in vocational training centres, vocational/technical schools and other training institutions are useful in employment (training effectiveness);

(c) the extent to which use is made of existing facilities and to which it is ensured that training is given in the shortest possible time while respecting the standards set for the particular course (training efficiency);

(d) the use made in employment of the skills and knowledge taught in various training courses;

(e) the extent to which training systems are broad enough to cater appropriately for meeting priority needs for training in all sectors of the economy.

A thorough inventory and analysis, as outlined above, of the scope, effectiveness and efficiency of existing systems of training will show in many cases that, if training systems are to be effective instruments in working towards overall national development, there is a need for improved co-ordination of effort in training, for systematic planning for the purpose of improving and streamlining training systems and for rapid expansion of their scope.

The inventory of existing facilities should include all quantifiable training processes by which practical/technical skills and knowledge are transmitted. The results obtained should be considered in conjunction with such long-term forecasts of employment and skill requirements as may be available, with a view to determining priorities in the development of vocational training, as follows:

(a) with reference to priorities set out in national development plans;

(b) for fields of activity in which improvement of training is likely to make a substantial impact on the rate of economic development;

(c) for groups of the population which may require special attention to improve their employment prospects, to raise the level of knowledge and skill in the type of work they are now doing and to prevent unemployment resulting from economic and technical change.

As it is not normally possible to determine future manpower demand in any considerable detail for more than a few years, long-term plans for the development of vocational training should be designed to provide broad targets for action such as: the establishment of institutions; the continuous development of standards; trade tests and examinations; the reinforcement of on-the-job training programmes; the development of pilot training schemes and of curricula; the conduct of research relating to training practices, effectiveness and efficiency.

It is a prerequisite for the planned and systematic development, improvement and expansion of vocational training systems in all countries that responsibility for the various aspects of planning and plan implementation should be clearly allocated. The general framework of plans for vocational training should be included in the overall national plan of the country where such a plan is formulated. Judging by past experience it would seem particularly important for separate allocations to be made in overall economic plans for the systems of general education and of vocational education and training respectively.

Experience in some countries appears to show that the establishment of a national training body, supported by competent staff, can assist greatly in the formulation of comprehensive vocational training plans, in promoting a co-operative effort by all concerned and in the successful implementation of the plans. While the specific functions and place in the national administration of each such body will depend upon the administrative practices in the country where it exists, the overall task of all national training bodies should be to prepare targets and guidelines for action, set adequate standards of training in the various fields of economic activity and provide for effective co-ordination between the various training establishments and undertakings providing training on the job.

Despite the growth in training systems which has taken place in the past two decades in most Asian countries, the tasks which need to be tackled by national training bodies are enormous. A rapidly increasing number of young people are growing up without adequate education and training; in addition, there is a backlog of skill shortages which it is essential to overcome if economic development is not to be hampered by lack of skilled workers and other technical staff with practical experience and sound knowledge of the processes of productive work.

Training planners should be inspired in their work by the general principles and standards set out in the ILO Vocational Training Recommendation, 1962 (No.117). In particular, care should be taken to provide for the effective participation by employers and workers in all decisive phases of planning and for close co-operation with other bodies which may contribute effectively to the formulation of plans and to their implementation.

B. Record of Discussions
Overall Objectives of Training

The basic discussion paper had raised the question of whether those planning a national vocational training system should endeavour primarily to:

(a) meet the needs for trained manpower arising from economic development, in progress or planned; or

(b) meet the needs for training of the mass of the population, with a view to enabling them to achieve higher levels of qualification and thus to promoting the social development of the country; or

(c) reach an acceptable compromise between the two.

With respect to (a), the paper suggested that this would involve limiting training to those who were already in employment, to those for whom employment seemed reasonably certain to become available, and to those who might in some other way contribute to economic development. The term "employment" was to be understood in the widest sense to include self-employment and activity in some kind of family business, in addition to wage-earning or salaried employment.

Some doubt was expressed by participants as to whether the term "overall objectives of training" was appropriate. A training system was not planned from a zero situation and it might be more correct to speak of immediate and special, rather than of long-term and overall, objectives.

Subsequent discussion showed that vocational training in participants' countries tended in fact to be planned in terms of current and special objectives. In several countries, little attempt had been made so far to plan training on a systematic basis at the national level.

It was considered difficult to distinguish between economic and social development: they were inevitably interdependent. In considering manpower needs for the purpose of economic development, it was also essential to take account of certain social demands which might affect decisions in the field of vocational training priorities very considerably.

There might, for instance, be substantial proportions of the population for whom it was considered essential to make special provision in the training system. In the majority of the Asian developing countries, there was a serious problem of young people between 12 and 15 years of age, and sometimes older, who were not in school but had not reached the minimum legal age for entry into employment. If it was decided to give such a group special priority, this would inevitably affect the overall objectives of the training system. However, the decision as to whether the vocational training system should concentrate on one of the three alternatives (a), (b) and (c) or on catering for such special groups of the population would not, in fact, be taken by the vocational training planner. The decision would be essentially political and be taken at a higher level. All needs could not in any case be met: it was essential to determine priorities. It was apparent that, in practice, the emphasis was on the use of training to help meet the demands of economic development, primarily in the industrial sector and that of infrastructural services (roads, dams, power supply, transport, etc.).

In spite of the general feeling that it was difficult to distinguish between economic and social development and that the decision on the relative priority to be given to each was not the responsibility of the training planner, there was some discussion of the relative priority which should, in fact, be assigned to each. It was pointed out that rural populations formed a very large proportion of total populations in Asian developing countries. Their need for social improvement therefore merited special consideration, but was not always taken sufficiently into account in determining the overall objectives of training.

There were different opinions on whether training should aim primarily at meeting current needs or at catering for those which would arise in the future. It was suggested by several participants that first priority should be given to broad training for the young, since this would be essential for national development in the future and to enable them to adjust to changes which might occur in their working lives.

However, other participants felt that it might not be practicable in some developing countries to wait for the results of such long-term action. In addition, the resources of developing countries were limited and it was essential to adopt a realistic approach in considering what actually could be done and what priorities should be adopted. In these countries it was preferable to concentrate on training a limited group in the first instance, with the idea that their influence would spread through society as greater resources became available. It was not desirable to concentrate attention only on training for the young as they would not be in a position for some time to make much contribution to their country's development. Such a delay could not be accepted; those already in employment could make a more immediate contribution to the economy

and it was essential to take account of their needs for further training.

Moreover, many developing countries had numbers of highly-educated people without qualifications relevant to the needs of their country's development, and to employment opportunities in general. Too many were encouraged to pursue studies in high-level exclusively academic streams. There were urgent needs for technically-qualified workers and it would be desirable to give preference to the training of adults, especially to upgrading and conversion training to give them better qualifications for their jobs. This would help to improve the training of the young later on.

Vocational training planning had to be looked at from many angles, for instance from the social, political, economic and educational viewpoints. It would, therefore, be much better to envisage vocational training planning as an integral part of national development planning as a whole. The training plan's aims and objectives would then correspond to the general pattern of the overall national plan. When vocational training planning was considered in this way even the content of general education might have to be revised in some cases. To the planners, the significance of the overall objectives was much deeper than is apparent at first sight. When considering the question of meeting the needs of the economy, as distinct from the needs of the individual, it had to be remembered that the needs of the economy represented the collective needs of the individuals composing it. Because of the limited resources available, and in order to raise the productivity of the work force as a whole, it might sometimes be necessary, as a short-term measure, to give priority to the provision of further accelerated training for existing workers; but this did not militate against the long-term objective of training for the new work force which takes place in the normal course of events.

I. Priorities in Terms of Personnel Categories

It was considered that, as the ultimate goal, the vocational training plan should have regard for the training needs of the whole population, and should keep these needs in mind in developing a comprehensive long-term framework for action. However, in setting up guidelines as a framework for an effective training system, developing countries are obliged to establish priorities in meeting the training needs of various categories of the population, as resources are usually insufficient to cater for all categories.

The meeting agreed that the long-term aim should be to establish a comprehensive and flexible system of vocational training which would be capable of meeting the training needs of the population at all levels of skill, and at all stages of their lives, from initial training for employment to upgrading, retraining, etc. It would,

however, be some time before this situation could be reached in many of the countries of the region. It was essential, nevertheless, that the framework for such a system be established at an early stage, while interim measures were taken to deal with immediate problem areas and categories of personnel. This would involve the establishment of training priorities for and within such categories as young people, adults of various ages, males and females, persons already in employment and having some degree of skill, potential instructors and others already or likely to be in a position to exercise a multiplier effect.

Difficulties had been encountered, in a number of the countries from which the participants came, in establishing priorities with respect to categories of personnel. It was felt that, as a general rule, training should be given to those groups of the population which could contribute most to the development of the country. There might, however, be cases in which it was desirable for certain under-privileged sections of the community to be given specific priority and an opportunity to receive vocational training with a view to improving their social condition and status. The decisions in regard to all such cases would have to be taken by the government of the country concerned, in the light of its own circumstances.

This implied that priority systems would differ from one country to another. In some countries special efforts might have to be directed towards the training of adult workers in employment with a view to updating and upgrading their skills. A secondary effect of such an approach might be an improvement of the training given to young people in employment as well. Some countries would need to give special priority to the retraining of redundant workers for new employment. In several Asian countries special attention would have to be paid to the provision of some form of training for young people who left school early, as a means of increasing their chances of finding gainful employment and, in some countries, of bridging the gap between the age at which they left school and the minimum legal age for employment.

There was general agreement on the need to provide training opportunities for girls and women. In several countries the facilities provided for boys and men were available also to girls and women; it was evident from the discussion, however, that training opportunities for the latter were often unduly narrow.

Some participants were of the opinion that great emphasis should be given to the training of adults, both of workers to cater for immediate needs and of those in a position to pass on their skills to others. It was stated, and there was general agreement on this point, that considerable, sometimes absolute, priority has to be given to the training of instructors because of the multiplier effect they have on the whole process of training.

II. Priorities in Terms of Sectors of Economic Activity or Occupations

The basic discussion paper had suggested that the vocational training planner in the Asian region would need to consider the sectors of economic activity for which training should be given priority during the next few years, at least; and that in doing so he should take into account the following factors:

(a) the relative importance of the sector in the country's economy;

(b) the proportion of the work force it employs;

(c) the current standard of performance of that work force;

(d) any changes anticipated during the next few years in each case.

As in the case of the overall objectives of training, it was emphasised that the decision was not really the responsibility of the vocational training planner; the latter had to conform to priorities established at a higher level which were then communicated to him. The discussion showed, however, that the training planner had nevertheless some latitude in determining at least on which occupations he should concentrate his attention in the short term.

Opinions differed on whether it would be possible to lay down criteria regarding priorities which would be applicable to all countries in the Asian region. One view was that this could not be done because of the varying conditions and needs of these countries. A contrasting view was that, while priorities would be likely to vary from country to country, some criteria could be drawn up which would be useful to all countries in the region in deciding on priorities. Such criteria might include:

(a) occupations within the framework of the national economic development plan;

(b) occupations in which a large number of people were employed; and

(c) occupations involving considerable skill, the acquisition of which required at least a year of intensive training.

As regards occupations within the framework of the national economic development plan, there was some consensus of opinion that this was likely to pose problems. Difficulties had been met in determining occupational categories, and even the economic sectors for which training should be provided. It was generally

agreed that the existing techniques for determining occupational components were often inadequate, and that care must be taken to ascertain these accurately for each country, and even for regions within the country.

In addition, it was not possible to secure reliable detailed information on what manpower needs actually were, particularly in the long term and at the overall national level. Arrangements had been made in one country, within the framework of a training scheme of limited scope, to determine relevant needs and priorities by means of a system of local and regional committees. Each committee was required to ascertain needs and recommend priorities for the area with which it was concerned and, subsequently, to organise appropriate training in the light of the facilities which could be made available.

The discussion showed that the training priorities actually followed in many of the participants' countries did not necessarily reflect the relative importance of different economic sectors. Thus, agriculture occupied a very substantial proportion of a country's population and economy, but relatively limited attention was paid to its training needs within the framework of national vocational training planning. The situation was complicated also by the division of responsibility for training for different economic sectors.

The meeting felt that more substantial provision should be made in each country for determining the relevant factors and procedures which would make it possible, in spite of the difficulty of obtaining accurate and realistic estimates on which vocational training plans could be based, to develop a long-term planning framework. Detailed planning would, on the other hand, have to be undertaken on a short and medium-term basis. Medium-term planning should be done with special reference to personnel categories and sectors of economic activity given priority in the national development plan as well as to the training needed for implementing development projects specified in that plan. Detailing the plan for specific occupations and for particular projects would be possible only on a short-term basis.

III. Elements of a Conceptual Framework

It was pointed out that the structures of existing training systems implied that certain priority decisions had already been taken. Experience had proved that these structures were not always in line with the long-term needs for training in the country concerned and several speakers emphasised the need for reviewing the operation of the training systems concerned in terms of their effectiveness in supplying the personnel needed. Planning for the future included, as a first step, determination of the actual and potential output of existing training institutions and of schemes of training in undertakings, and of the various categories of people who might profit from improved training. These categories

would include such groups as people in employment, who could be trained to do a better job, or upgraded to work at a higher level of knowledge and skill; unemployed whose employment prospects might be improved by training; people undergoing some form of training, whose performance might be improved if the training process were improved (for example, in rural areas and in the small industry and service sectors).

All vocational training planning would have to be considered both within the general conceptual framework of a plan for systematic adaptation of the skills and knowledge of individuals to the requirements of employment, and as a continuum which begins with general education and moves through pre-occupational training in higher primary and in secondary education to occupational training which may be given either before or after entry into employment.

In some sectors a general, indicative plan could be prepared in a long-term perspective, setting out the general goals which had to be attained over a period of more than five years. This could be done with some considerable accuracy in such fields as: training for power supply and electrification of rural areas; training required by farmers and personnel needed for repair and maintenance of equipment used in agriculture, for storage and processing, for certain sectors of industry in which long-range investment planning was undertaken, etc. Detailed action plans could be prepared, within the general framework of the indicative plan, for periods of one or two years which would determine what types of course could be organised for the various sectors and groups of trainees with a view to those who completed training finding employment immediately afterwards.

Both the long-range indicative plan and the short-term action plan required, inter alia, the following action:

(1) choice of sectors for economic development in order of priority (decision taken outside the vocational training system);

(2) identification of totality of occupations in each sector;

(3) identification of occupations which can be taught primarily by:

  (a) institutional training;
  (b) training on the job:

    (i) by individual undertakings;
    (ii) by groups of undertakings;

  (c) training in a combination of (a) and (b);

(4) identification of crucial occupations in which the greatest numbers are required;

(5) identification of commonality of skill and knowledge elements with a view to obtaining maximum economy of resources in basic training, in practical training and in related instruction;

(6) identification of changes in occupations for which requirements may fall off and for which retraining may have to be carried out (with implications as regards not only trainees but also instructors and equipment, etc.);

(7) as a guide to conducting programmes of retraining in other occupations and also for the purpose of other programming action, trades and other occupations could be classified into the following groups:

Group A - occupations requiring more manipulative skill and little conceptual skill;

Group B - occupations requiring manipulative and conceptual skills to an approximately equal extent;

Group C - occupations requiring more conceptual skill and little manipulative skill.

Forms of Training

The session was opened by a talk on the Qantas Airways Ltd., training scheme by Mr. P.H. Chown, Manpower Manager of the company.

The main points made by Mr. Chown in the talk and the subsequent discussion were as follows:

(1) Patterns of training: Qantas is a developing organisation which has to ensure that a sufficient number of people with the skills required are available at any particular time. Its problems therefore have many similarities, although on a different scale, with those encountered by developing countries.

(2) Management attitudes to training: it is probably true that managements are likely to represent the whole scale of attitudes from those who have a spontaneous interest in training, through those who have to be forced to take an interest, to those who automatically consider any training in their organisation as a waste of time. It is a matter of consideration whether responsibility for fostering understanding by managements of the need for training is for industry alone, or whether the government, particularly vocational training personnel, should also undertake such responsibility.

(3) Organisation of training: for an undertaking training is inherently a mixture of formal and informal processes which take place throughout the working life of those employed. The essential stages of organisation are: sorting out what the training is expected to achieve, working out the appropriate content of training in each phase, obtaining the necessary "hardware" (teaching aids, classrooms, etc.).

The principal question to be answered is whether responsibility for organising training lies with central or with line management. There are no hard and fast rules as, even in comparable organisations, the problem may be solved differently.

Qantas has chosen the pattern of dispersed responsibility, considering that functional managers should be held totally responsible for those working under them, and that this responsibility should include training. It is considered that this approach provides for optimal, if not maximum on-the-job application of theoretical training. Delegation of training responsibility to line managers is related to the size of the organisation concerned and, in particular, to the breakdown of occupations into a large number of specialisations. The existence of these specialisations makes it necessary to define clearly the objectives of each training course and to delegate training responsibility to the line. A central group of educational specialists provides an advisory and consultative service to the line.

(4) Training effectiveness and efficiency: "effectiveness" and "efficiency" are not the same. A training course can be effective in that it produces the kind of skilled worker required, while at the same time being conducted very inefficiently or uneconomically. Effectiveness has to be the first consideration in Qantas. This enables the training to be started and prevents excessive discussion in advance of what is to be done, and how. Once a course is operating effectively, those responsible for it look into the various components to find out what works well, what can be improved and what does not work. Necessary changes to achieve efficiency can then be made progressively without holding up the introduction of the course.

(5) Technological change: in an industry such as air transport, technological change obviously makes heavy demands on the flexibility of initial training and retraining courses. However, it is often impossible to wait for specific objectives to be laid down (such as the skills personnel should have for aircraft to be introduced in

several years' time), as the training could never be organised early enough to produce the qualified workers at the time they are needed. The principle followed is to start in the general direction of the anticipated change and to adjust as the course proceeds.

(6) Approach to in-plant training planning: the basis for planning in Qantas is a five-year development plan for the whole organisation which provides broad guidelines only and is revised each year. There is considered to be little point in trying to go into great detail beyond broad targets in a projection over such a long period. Detailed planning, within the longer term plan is done only for twelve to eighteen months at a time.

(7) Training required in a specific course: this is worked out by attempting to answer two questions:

(a) what skills and knowledge are necessary to achieve a certain performance?

(b) what skills and knowledge do entrants into a course possess?

The first question is answered through detailed job analysis.

(8) Who does the training: discussions have taken place between the authorities responsible for technical education and Qantas as to the role of each in some key areas of vocational training. From this dialogue, it seems likely that there will be co-operation between the two in training specialised manpower for Qantas. This will be done on the approach that it is for the two parties concerned to work out together which is the best qualified to give a particular part of the training and how the training given by each can be integrated to produce the best results.

(9) Objectives of training: three objectives need to be clearly defined if training is to achieve its objective:

(a) what the trainee must be able to do to be proficient (to be defined as accurately and explicitly as possible, preferably in measurable terms);

(b) the conditions in which the trainee will be expected to do his job (training people in conditions completely different from those in which they will be working after completing training causes unnecessary waste of time and possibly expense);

(c) to what degree of accuracy the trainee will be expected to do his job (a major consideration, especially in regard to safety).

In Qantas, the setting of objectives for training is normally done by the trainers. The company's central co-ordinating training unit feels, however, that this should be the joint responsibility of both trainer and line manager (the latter is responsible for achieving the desired results in his department).

(10) Training of trainers: for preference, this training is given in-plant, the objectives of the course being worked out in detail for each group of instructor trainees. The concepts, content and duration of the course are then determined in the light of the objectives. The first course is in basic methods of instruction; by means of close analysis it has been possible to reduce this course to six days of intensive training which has been extremely successful. Instruction clinics are subsequently held with groups of instructors and these are devoted mainly to practical problem-solving in the light of the problems the instructors encounter in their work. An annual trainers' seminar is also held.

Subsequent discussion related to patterns of training in the developing countries of the Asian region.

The discussion showed that, while there are many variations, education in Asian countries in the past decades has shown a marked orientation towards an academic-type of general education with vocational training, or training for employment, lagging well behind.

It is also common for vocational training, particularly in institutional forms, to be concentrated on industry; and for the agricultural sector in which, with the exception of the few industrialised countries in the region, from 50 to 85 per cent of the population lives and works, to receive very little, if any, attention.

These characteristics reflect society's tendency to attach more value and more status to general and academic education - the white-collar syndrome - than to specific training for the kind of employment which is likely to be both more rewarding in financial terms and of far greater value in the context of a country's development plans.

It was noted that several recent developments had taken place which may modify educational systems in the future. Greater awareness now existed that education in its widest sense, while considered of value in itself, has to be related more closely to development of the manpower required to raise the standards of living for the population

as a whole through accelerated economic growth. This was becoming evident by the proportional increase (which was, however, still slow) in the numbers enrolled in vocational training institutions, by the trend to introduce a vocational bias into general secondary, and even into primary education, and by the increased extent to which industry was being involved in the setting-up of vocational training courses as a means of ensuring that the training was adapted to the needs of prospective employers. It was agreed that these developments could only be welcomed although there were still a large number of serious obstacles to be overcome before a better balanced educational and training system could be achieved.

The following problems were mentioned explicitly or implicitly in the discussions:

(1) Quality of Vocational Trainees

By and large, the experience was that vocational training had had to make do with enrolling school-leavers, including drop-outs who had done relatively badly in general education. Again, it was felt that this was a reflection of the wider, societal attitude which favours academic education. In order to improve the quality of vocational trainees, efforts would have to be made to influence and change this attitude, although this would probably take more than a generation.

(2) Numbers Enrolled in Vocational Education/Training

In the Asian region, approximately 7 per cent of secondary school enrolments are in the vocational stream. This proportion was considered far too low, particularly in view of the manpower situation typical of developing countries, in which there is a chronic shortage in the supply of technically-qualified manpower at all levels. It was suggested that investment in education should be related more directly to requirements for national development; and even that the distribution of budgetary resources should be organised in such a way that an increasing proportion of the total amount allotted to education was allocated to vocational and technical training facilities, thus reducing the possibility of expanding education of a strictly academic type.

(3) Vocational Guidance

Where a system of vocational guidance exists in the various countries of the region, it is often very restricted and frequently ineffective. This is undoubtedly due to some extent to the general tendency of society mentioned earlier, to favour the academic type of education. There was no detailed analysis of the deficiencies in vocational guidance and of possible remedial action, but a few questions were posed such as: what type of action should be

taken to provide the right kind of guidance? Who should give the guidance - professional guidance officers, parents and other relatives, teachers or any combination of these? To whom should guidance be given? How can a child's real aptitudes be determined? Should guidance be related only to aptitude, or also to personal inclination, social background and other factors? At what age level is guidance likely to be more effective in relation to personal and intellectual maturity?

(4) Relationship between Vocational Training and the Needs of Industry

A very common problem in the countries of the Asian region, though by no means exclusive to them, is the disparity between the skills imparted by vocational training and the skills required by industry. It was stated that one of the main reasons for this problem was that training institutions develop their courses without consulting or involving employers and workers. Discussion showed that attempts were being made in most countries to solve the problem, mainly through the creation of advisory or co-ordinating bodies on which employers and workers are represented. It was felt that this problem was very closely related to that of the practical training given in training institutions.

(5) Practical Training in Institutional Courses

It was generally felt that practical training in institutions could be, at best, only moderately successful as the application of skills in a work environment makes demands on the trainee which differ substantially from those made in a practice lesson or special project in a training institution. In some cases, this problem had been tackled by attaching production units to vocational schools or centres in order to familiarise trainees with the whole process of experience taking place in actual production. A note of warning was sounded, however, that the production unit could become an end in itself instead of basically a teaching aid, and that this could have serious adverse effects on the quality of the vocational training.

In some countries a lack of co-ordination appeared to exist between vocational training planning and other areas of planning. It seemed that, regardless of whether overall planning bodies operated at national, regional or district level, they seldom included representatives of the vocational training system and/or of industry.

It was considered that there was a good case for vocational training planners in the future to press for recognition of their needs in the total allocation of resources for education and training. This action must be accompanied, however, by an awareness of the relative importance of vocational training in the overall framework, i.e., projects and plans

should not be promoted independently when this would have an adverse effect on the development of a balanced and comprehensive system of education and training.

It was pointed out that the growing trend towards a practical bias in general education in the region was a fairly recent development. A guidance type of approach was being adopted at primary level and a streaming at secondary level where it was becoming more common to provide experience of manual and technical work. Practical/technical instruction was now coming to be considered an essential part of general education and curricula were increasingly being designed to enable pupils to acquire some basic knowledge and skill in practical/technical work and thus to make a better choice of occupation.

It appeared that attrition at all levels of education and lack of upward mobility between levels were leading in most countries to substantial losses of what is essentially a scarce resource: relatively well-educated and talented youths. It was felt that, to counteract this situation, it might be desirable to make a close examination of the structure of vocational training in order to determine whether it would be possible to bring about better utilisation of these manpower resources by eliminating, at each level, strictly terminal courses which did not provide an opportunity for brighter and more ambitious trainees to obtain higher vocational qualifications.

It was stated that, while there was little doubt that some governments had not involved industry in the planning of vocational training, it was also true in some cases that industry had not asked to participate actively in the planning process at the national level. A number of undertakings had, however, planned and set up comprehensive training schemes to meet the needs of their particular sector. In order to be effective, vocational training would have to be geared towards meeting the needs for trained manpower in industry - and, in fact, some people believed this to be the sole justification for having vocational training. But positive action by governments to involve industry more closely in all phases of planning was required to achieve this goal. In the long run, it seemed that industry would also have to contribute financially for two main reasons: it was in their own interest and, because of the high cost of vocational training, governments could not be expected to provide indefinitely all the resources necessary for the rapid expansion of training systems.

The discussion showed that, in addition to the traditional forms of vocational training, other forms are receiving attention in some countries. In one country accelerated courses of industrial training have, for example, been introduced in the Industrial Training Institute and a pilot scheme is being worked out under which trainees who have completed courses will be attached to selected industrial establishments for a period of one month of in-plant work experience. In another country a rapid expansion is taking place in arrangements for workers' general education and training

to improve their skill potential; this whole scheme is conducted by unpaid voluntary teachers.

It was clear that parallels with the past experience of advanced countries were considered difficult to make and often misleading. In these countries the industrial revolution and its aftermath had created a strong, but only slowly growing demand for vocational training to which the educational systems could generally adjust themselves. In developing countries, the development was often the reverse. Although there was not much, if any, industrial experience, vocational training had sometimes to be set up in order to get industries started.

In addition, there had been a tendency in the past for governments to choose between alternative forms of vocational training on the basis of the cheapest rather than what was necessarily the best form. However, cheap forms of training could turn out to be very expensive. The proposed content of training, and the availability of instructors should be carefully checked and cost/benefit analyses should be made of each form of vocational training in order to determine as objectively as possible which form would be the best and the most likely to produce manpower with the required skills. It was emphasised that the analysis of benefits deriving from training action should include not only results measurable in monetary terms but also ones which can be measured only against socio-psychological yardsticks.

It was stressed, in conclusion, that the ultimate decision on the allocation of resources - which often determines the kind of vocational training that can be undertaken - was essentially a political one. Vocational training planners had a responsibility to emphasise the vital contribution made by vocational training to national development and to seek to have their views taken fully into account in relation to relevant planning decisions.

Standards of Training, Tests and Examinations

Three guest speakers took part in the discussions on these subjects. They were: Mr. G. Stoker, Superintendent (Engineering Courses), Department of Technical Education of New South Wales; Mr. H.S. King, Assistant to the Director of Technical Education of New South Wales (both in connection with standards); Mr. C. Gilmour, Director of Technical Education, Department of Education, Queensland (in connection with examinations).

Standards of Training

Mr. Stoker presented a paper entitled "Syllabus and Course Construction" and Mr. King one on "Some Aspects of Technical Education in New South Wales".

The following points relating to vocational training in New South Wales were included in the papers or emerged from the discussion which followed:

(1) The courses provided by the Department of Technical Education are part-time, it being assumed that the trainees, many of whom are apprentices, are simultaneously obtaining training and experience in undertakings. The courses given by the Department include theoretical instruction as well as some practical work. The latter is designed to illustrate the theory taught. There are no formal arrangements for ensuring that, during the technical college course, the instruction is co-ordinated with the training on-the-job being received in an undertaking.

(2) Two major methods are adopted by the Department to ensure that the courses meet the needs of industry, and are comprehensive and up-to-date. These are:

(a) advisory committees consisting of people from industry chosen because of their ability to make a worthwhile contribution;

(b) occupational surveys.

The aim of the occupational surveys is to obtain information on the skills and knowledge required by skilled workers in a particular trade, to provide a basis for the organisation of trade training courses to supplement on-the-job training for apprentices, trainee technicians and others. Surveys cover both urban and rural areas, in order that the training may reflect training requirements throughout the State.

(3) The Department of Technical Education is generally, but not entirely responsible for determining the relative priority to be given in its courses to specific occupations. Its priorities are determined in the light of the cost of training in colleges and the relative effectiveness of institutional and on-the-job training respectively and the type of training which each is best qualified to give.

(4) It is compulsory for apprentices to attend technical college courses for a proportion of their apprenticeship term, but success in the college examinations is not a prerequisite for completion of apprenticeship. A number of industrial bodies known as apprenticeship councils have the power, in certain cases, to terminate an apprenticeship

because of unsatisfactory college results, but do not normally exercise this power.

(5) The instruction is at present on the basis of day-release or evening courses, where technical colleges are accessible to apprentices. For apprentices who cannot attend the colleges, arrangements are made to supplement their on-the-job training by correspondence courses, tutorial classes and mobile units, sometimes in combination. Under these arrangements, which are not compulsory, there is a problem of co-ordinating theory and on-the-job training and consideration is being given to the organisation of block-release courses which would include both practical and theoretical instruction. The mobile units have insufficient facilities to be fully satisfactory.

A number of participants described the arrangements made in their countries to set standards of skill and knowledge to be acquired in training. It appeared that the problem of co-ordinating theory and practical instruction had not been solved in many cases. The arrangements which had proved most successful involved close contact and collaboration between the economic sectors concerned and those responsible for training at all stages of a course from planning to implementation.

There was some discussion of whether training standards were, in fact, necessary. It was pointed out that both public and private undertakings tended to set their own standards, and that standards were implicit in training institutions. It was also stated that the establishment of standards by a national training authority might lead to undue rigidity in the training system. In one country it was intended to unify standards for institutional training and those for vocational training within undertakings in order to improve co-ordination between both types of training. Similar action had already been taken in other countries.

It was emphasised by several participants that it was necessary to distinguish, when planning training, between industrial skill standards, production standards and training standards. Those relating to training had to take account of the others but might have to be set initially at a lower level than would be desirable in terms of the level of industrial skill and production aimed at in the long run. It was suggested that a realistic approach for Asian developing countries would be to aim at achieving the industrial skill standard which was acceptable in their countries at the present time. It was pointed out that it was also necessary to distinguish between standards set for the initial training of young people and those prescribed for the training of adult or older workers. Standards could subsequently be adjusted for the purpose of achieving the desired level of competence by means of further training, including upgrading and retraining.

There was some discussion of whether training standards should be raised gradually or abruptly. One view was that it should be done gradually, because of the implications for trainees, training staff, and materials. However, it might be possible, when following this procedure for those who have already received some training, to plan simultaneously for the establishment of standards at a higher level. These standards would then be applied to the training of new entrants to the labour force. Another view was that gradual raising of standards was not always acceptable. There might, for instance, be a sudden demand for higher level skills within the framework of plans for economic development. In this case it would be essential to introduce higher level training standards without delay; the necessary arrangements would then have to be made, from the viewpoint of planning, to ensure that the appropriate staff, syllabi and materials were available.

A number of different procedures for the establishment of standards were reported by participants. In one country, the initiative was taken by industry to ask for training to be provided when it already had or anticipated shortages. The training authorities then determined exactly what was required and moved gradually in setting up standards. In another country it was considered desirable to distinguish occupations for the setting of standards according to the type of skill they involved: manipulative, diagnostic, or analytical. The way in which the standards would be defined would depend on which of these skills were involved. The public and private sectors tended to set their own standards. It was suggested that the training organisation should gear its standards to the needs of industry but set them a little higher.

The discussion showed that training standards established initially in other, more industrially-advanced countries were still used to some extent in the region. It was evident that they had not proved entirely satisfactory, but that a number of countries had not yet been able to establish the organisation required for establishing their own standards on a comprehensive scale. There seemed to be growing recognition that there was some urgency to establish machinery to prepare standards at least for key sectors and occupations. The criteria for identifying these sectors and occupations varied from country to country, and it was not possible to specify what these sectors and occupations were for the Asian region as a whole. It was stated in this connection that in developing countries it was not possible to develop standards in all sectors immediately. However, it should be possible to determine an order of priority for standard-setting over a period of years according to the economic plan.

With respect to what the standards should cover, it was considered that this would vary according to the type of occupation involved. Where the occupation required little in the way of theoretical knowledge it might therefore not be essential, at least at the present time, to include theory in the standard. The reverse situation would apply with occupations requiring considerable theoretical knowledge.

Tests and Examinations

Mr. Gilmour opened the session by outlining the principles to be taken into account in establishing an examination system, with particular reference to practices in Queensland. The desirable examination pattern appeared to be a combination of continuous assessment with periodical and final examinations. There was a danger of countries depending too much on foreign examinations as these were designed to operate in what might be very different circumstances. It was essential that the examinations used should be sufficiently objective to test and examine what was important in the particular circumstances. It would therefore be desirable for countries to make their own examination arrangements, possibly with international collaboration.

A number of countries in the region had already established or were setting up schemes for skill testing. The tests were not always compulsory, but might lead to qualification for higher wages. They were used also as a prerequisite for practising particular occupations. In one country of the region, skill tests were being used as an essential tool in ensuring the effectiveness of training for the particular occupation, from the planning point of view. In this country a number of external aid programmes, both international and bilateral, had introduced different training schemes for the same occupations. The skill test system was used to ensure that the required standard had been achieved on completion of the training under these various schemes.

The role of examinations within the framework of vocational training planning was discussed at some length. It was emphasised that, whatever the form they took, they were closely related to training standards. They could serve as a means of assessing the syllabi courses; where national training standards had been set, of facilitating occupational mobility; of facilitating the establishment of training standards.

Where countries had established national examination systems, this had been done mainly for the modern industrial sector, and for apprenticeship. It was suggested that it should be possible to extend the system gradually to other sectors, although this would clearly have implications as regards the technical and administrative staff who would be required and other arrangements involved. Another view was that it might not be necessary to provide for examinations over the whole field of training. In addition, examinations assumed that trainees received the same kind and level of training. This was not an acceptable assumption since all training staff, particularly in undertakings were not of the same calibre. It would be desirable in this connection for the introduction of a national standard and examination system to be combined with arrangements for training instructional staff in undertakings in particular.

Training Staff

The discussion of this subject was opened by Mr. R.L. Senior, Inspector of Technical Schools, Education Department, Victoria. Mr. Senior emphasised the high level of technical and personal qualifications required of training staff and outlined possible approaches to ensuring that they had these qualifications.

It was generally agreed, early in the discussion, that the provision of adequate training staff for both institutional training and training in undertakings required careful planning. Such planning action would have to include the determination of possible sources of recruitment, of needs for further technical/practical training of new recruits, of methods of upgrading and updating technical skills and of the type of training to be given in the various pedagogical functions of training staff. Programmes for training staff would have to be worked out carefully in the light of the specific functions assigned to them, the extent to which training staff in undertakings combine the training functions with other tasks and the time that they could spare for learning how to train.

Full-time instructors and teachers needed a different type of training depending upon the level of vocational training and technical/vocational education at which they were going to teach - trade, technician or technologist levels. All needed a level of skill equal to that obtaining in industry, i.e. they should be familiar with industrial practices and procedures relating to their subject and specialisation; they should have skill in teaching their subject and familiarity with the various training aids as well as an understanding of the attitudes, background and learning capacity of the groups of trainees for whom they would be responsible; they should be taught communication skills and how to teach them. A good social understanding was essential and a capacity for taking on responsibility.

The industrialised countries in the region had usually not met any considerable problems in recruiting qualified teachers and instructors for institutional training. Their status and salaries compared satisfactorily with those obtaining at a corresponding level of work and responsibility in industry. Most developing countries, however, had met considerable difficulties in recruiting and retaining competent training staff.

Several examples were given showing wide variations in teacher/instructor training practices between countries and even between different training schemes within the same country. However, it was noted that, as a general rule, short-term training essentially providing basic instructional skills was being replaced gradually by more comprehensive courses of technical/practical upgrading combined with training in the use of teaching methods and aids.

In some countries which previously had used short-term teacher/instructor training courses, special upgrading courses had become necessary to raise the overall quality of instruction.

The functions of training staff varied greatly depending upon the level of instruction and the availability of competent staff. At lower levels of vocational training, characterised by a predominance of manual skill training over instruction in theoretical knowledge, recruitment at skilled craftsman level - from industry or from graduates of training institutions - was generally the rule. In these cases, both workshop practice and related theory were often taught by the same instructor who was trained in the instructor training institutions to handle both. In trades and other occupations requiring the application of theory to practical situations, design of technical components, the exercise of technical judgment, etc., specialists were usually considered necessary for teaching individual subjects.

The recruitment and training of teachers and instructors required long-term planning and careful study of the particular aims of each programme. Such planning should include study of the competence and the turnover rates of existing staff and of the staffing needs of new or planned training institutions, and identification of training functions in undertakings.

It has been found both economically and technically desirable to provide training in the same institution for both training staff in institutions and instructors and supervisors in industry. Multipurpose institutions of this kind had been found particularly useful in countries in which basic institutional training was combined with training in employment.

Provision had been made in only a few countries to train education and training officers for undertakings. In many countries the number of such persons was too low at present to justify running courses. It was agreed, however, that staff in this category had a key role to play in the development of training and that they required special training, inter alia, in techniques of planning training.

Evaluation

It was stated at an early stage of the discussion that there was increasing pressure for an adequate evaluation to be made of various training programmes and schemes and particularly of projects receiving international or bilateral assistance. For this reason, it was important that the aims of each project or scheme should be determined as far as possible in quantifiable terms. This would allow collection of baseline data for evaluation before implementation began as well as make it possible to determine the effectiveness of the project at a later stage - this might be on conclusion of implementation, at intervals during implementation, or several months or years after conclusion.

It was also stated in this connection that projects might be evaluated against their own aims and criteria for success; as part of a system of vocational training in a comparative evaluation; and with regard to their impact on factors such as safety, health, productivity, earnings, etc.

A distinction was made between evaluation, on the one hand, of the effectiveness of a project, for instance, in terms of the number of persons placed in employment, their career after first employment, etc., and on the other hand, of the efficiency with which the project was implemented. One case was mentioned of a limited evaluation of effectiveness in which the employment records of 500 apprentices trained over the past seven years had been studied. Similar follow-up had been carried out in another example mentioned, the instructors in instructor training institutes had only been used as a source of information; it had been found that the instructors usually had comprehensive information about the subsequent activities of their former trainees and that a relatively simple evaluation procedure could therefore be used.

An example was also given of a follow-up study of TWI trainers which was designed to identify to what extent they continued to be used as trainers within their respective organisations, the number of courses they had run, etc. There was some discussion about the correct interpretation of such studies. Several participants pointed out that the rate of placement in further activities and the subsequent career of former trainees might not always be the best criteria for judging the success of a particular training programme.

Several examples were cited in which attempts had been made to determine the efficiency of various training programmes in such terms as utilisation of tools, machines and other equipment. Such studies had, in many cases, led to quite considerable improvements in the conduct of the programme and to savings in costs.

One participant emphasised the cost involved in any comprehensive evaluation effort. It was true that, on an individual project, the cost of evaluating the results achieved might be small in relation to total product cost; it was agreed, however, that it was important to select judiciously the specific projects to be evaluated and the criteria to be used in the evaluation, and to ascertain in advance whether the data which could be collected could be given a meaningful interpretation.

It was generally agreed that there is as yet little practical experience of really scientific evaluation of training projects; this was believed to be so despite the rapidly expanding literature on evaluation generally and the increasing demand for detailed cost-benefit analyses to be made. In the future, vocational training planners would have to pay increased attention in their planning work to such possibilities as might exist for scientific evaluation; they would also have to provide information about the variables which might be considered

measurable in terms of a cost-benefit analysis expressed in financial terms, the variables which could be measured but not translated into monetary terms, and the variables which were not subject to quantification. Such a clarification of possibilities for, and of the obstacles encountered in evaluation was particularly important in view of the demand for utmost economy in the design of training schemes and also because of the tendency which was sometimes evident to judge the value of training schemes on the basis of incidental information.

Central Training Bodies

The participants' replies to the questionnaire completed before the meeting had indicated a clear trend towards the establishment in an increasing number of countries of central or co-ordinating bodies for vocational training. At the beginning of the discussion an example of the organisation of such a body primarily intended for the co-ordination of training for industry was described in some detail. This organisation operates under a governing board some of whose members have experience in industry and labour affairs while others are representative of the authorities concerned with or interested in education and training. The organisation operates under an executive director and has at its disposal a pilot centre for the training of instructors and for experimentation with different training methods in a wide range of trades and other occupations. It also has mobile training services for assisting the various agencies concerned with vocational and technical education and training in their work and for giving advice and assistance to individual undertakings. Separate divisions of the organisation deal with such matters as research into accelerated training, the organisation of in-plant training, the organisation of apprenticeship schemes, the elaboration of trade skill tests and job analysis and the provision to industry and to training bodies of occupational information and guidance.

Several other examples were given in the discussion of the establishment of similar bodies for the co-ordination of vocational training activities covering either most fields of economic activity or specifically training for industry. Some of these bodies had been in operation for quite a considerable period of time; but most of them were new or in the first stages of organisation.

There was some apprehension among participants concerning the meaning and implications of the term "co-ordination", particularly in relation to long established systems, and the role of central training bodies as regards the development of standards and the co-ordination of work between different systems. In particular, problems in relation to co-ordination might arise in countries with a federal system of government; the term might be interpreted to imply a degree of control which would be unacceptable and possibly self-defeating when education and training activities were the responsibility of states or independent bodies.

Participants gave accounts of means currently used in their countries to co-ordinate vocational training activities. In several cases representative advisory committees were used as a means both of facilitating the gathering of information about occupational skill requirements and the precise type of training needed and of encouraging employers in both public and private sectors to develop apprentice and other occupational training arrangements.

It was generally agreed that appropriate planning and standard-setting in the field of vocational training required a network of co-ordinating bodies, each with responsibility for a particular sector or area: it should be understood that the principal emphasis in the work of such bodies was to advise and guide the authorities, employers and others directly concerned with the implementation of training activities.

Experience with national advisory committees had varied. It was suggested that they were most effective if specialised groups were organised to advise on particular sectors or occupations and if these groups included people who were immediately involved, such as managers, instructors, workers and others with direct practical experience in the particular field of economic activity concerned. This did not preclude representation of employers and unions; the important element was that employers and unions should be represented by persons having direct experience of practical training or of work carried out in undertakings. It was pointed out that the need for such extensive advisory machinery and for co-ordination had become particularly great because of the growth of a number of parallel activities in most training systems during the past few years. This was partly due to the variety of aid received from different countries and aid-giving agencies which often felt it necessary that the training they provided be based on their own national practices.

With regard to the functions of a central training body or of bodies specifically concerned with training in a particular industry or other sectors of economic activity, there was general agreement that these should include the establishment of standards, including examination and trade testing standards for the main or at least for priority occupations. They should also include arranging for the training of training staff both for institutional training and for undertakings.

As required, the body or bodies concerned should also provide for or assist in the organisation of basic training and the related trade instruction required to complement training in undertakings.

The most important functions of central training bodies included the development of new programmes and standards and the revision on a continuing basis of plans and standards for training in different occupations and economic sectors. Investigations relating to the needs for training in different sectors should be conducted on a planned basis. Particular emphasis should be placed, in the opinion of

one speaker, on study of current practices as a basis for determining what priority should be given to the training of different groups of personnel. He cited as an example a study of training in industry which aimed at determining who actually did instruct new workers. This had led to changes in instructor training policies.

There was a comprehensive discussion on the value of research relating to training aids and the development of new aids. Several speakers drew attention to the fact that many training institutions are well equipped with training aids, but that these aids are not used sufficiently by the teachers and instructors; for this reason it might not be justifiable to place any particular emphasis on research aimed at the development of new aids. Other speakers suggested that extensive use of training aids was necessary for efficient training, but that this should be achieved by providing frequent courses for training staff in the use of the aids available.

In one training organisation groups of trainee instructors at the central instructor training institute had been made responsible for the development of training aids. This had given excellent results and had led to the involvement of instructors in the development of new aids as well as providing many of whom with sound training in the techniques of aid construction. In this manner, the instructors learned to develop aids which could be used effectively in their particular line of training without undue cost; at the same time trainee-instructors learned to work with the materials and machines at hand rather than to copy aids provided by outside agencies. In some cases, it had been found profitable to include the production of aids to training in the syllabus of training at various centres.

An additional function of central training bodies was the organisation, on a systematic and planned basis, of experimental and pilot courses of training so as to help determine the most appropriate forms of training for particular conditions.

It was the experience in several countries that new courses required to be tested extensively in pilot form before they could be developed in final form and used for larger numbers of trainees. Such testing should include the syllabi to be used, the choice of teachers and instructors and the type of training they needed to qualify them to conduct the particular courses, the period of training and the aids most appropriate for achieving results in training.

One participant drew attention to studies which had been made by continuous observation of the use of equipment, tools and materials and of instructional time in several courses. Excellent results in terms of savings in materials and purchasing of equipment as well as possibilities of reorganising training on a more streamlined basis had been obtained through such studies. It was felt that more work needed to be done in this direction and that

the results obtained should be communicated to aid-giving agencies to help them provide the most suitable equipment and to draw up lists for different types of training with a balanced set of equipment for each type of course or institution. Throughout the discussion, emphasis was placed on simple practical studies and research projects carried out by the central training bodies themselves or by outside bodies along the lines of a plan prepared by the central body or bodies. It was pointed out by several speakers that, for instance, job analysis alone would not be a sufficient basis for the organisation of training; it had to be supplemented by study of methods and processes and opportunities for job simplication since this would help to make it possible to design courses which would provide knowledge and skill above those normally involved in the occupation in a developing country.

It was agreed that it was necessary to establish a comprehensive plan and to determine the distribution of responsibility between the various bodies in each country for the various functions of planning and organisation of training. Planning the organisational framework should include the allocation of such functions as: determination of training standards, standardisation of layout of centres, etc.; provision of training for training staff in institutions and in undertakings; studies and research into the conduct of training, the skill levels to be attained and the techniques through which results may be tested both as regards individual achievement and the operation of the training system as a whole.

Financing of Training

Discussion on this point related primarily to the advantages and disadvantages of introducing some kind of levy-grant system. The purpose of such a system would be to encourage employers to undertake training, to distribute the cost of training more equally between undertakings and to secure financial resources for the provision of training facilities outside undertakings.

The introduction of levy-grant systems had been discussed in several developing countries of the region but no final decision had as yet been taken to adopt them.

The first speaker on the subject voiced serious doubts as to the workability of such a system in the conditions prevailing in Asian countries. It appeared that quite considerable problems had been encountered in the application of the 1964 Industrial Training Act in the United Kingdom and of similar legislation in other countries. He suggested that any proposal to introduce such systems should be scrutinised with the utmost care.

Another participant emphasised the difficulty which had been encountered in his country in securing the support of the employers for such schemes, particularly in a situation of unemployment and underemployment.

A third participant pointed out that the total cost of training was rising. He suggested that some means would have to be found to achieve greater participation by employers in the expansion of training systems. This would be the principal aim of the levy-grant system. Another participant questioned whether levy-grant systems could be made effective. It was imperative that each country study carefully the administrative implications of such systems and the extent to which they might be expected to influence employers' decisions on training matters favourably.

In one industrialised country of the region a special levy system had been operating successfully for some time in one industry (sawmilling). An Act had recently been adopted which provided for individual industries to adopt levy systems if considered desirable. Employers were concerned about the rising cost of training within undertakings as apprentice wages had risen and block release courses reduced the time available for directly productive work.

One participant referred to the training fees which undertakings in his country paid on behalf of their trainees. Employers in this country considered these fees to be unduly high and training had suffered. A temporary production training programme had been planned to overcome the shortages which resulted.

Another participant emphasised that, in his opinion, a levy-grant system such as the one in force in the United Kingdom could certainly not be called a "complete" or "best" answer to the problems encountered in increasing employer participation in training. He considered the United Kingdom system to be a large-scale experiment which still had to prove its value. It was by no means clear yet whether the system would achieve the desired results.

Several other participants also urged that proposals for the introduction of grant/levy systems be studied with great caution and expressed doubts whether such systems could operate successfully in the conditions existing in Asian countries. Vocational training planners should be wary of suggesting what might appear an easy way out of their problems in securing financial resources and should be careful to state their case to national planners in terms which were significant to them, i.e., in economic terms.

Other means of promoting training action mentioned in the discussion as being perhaps in some cases more appropriate than levy-grant systems included direct subsidies to undertakings which did more than their share of the total training effort, special allowances to employers or trainees, and tax rebates for investments in training.

Use of Technical Co-operation

At several points in the discussion of other subjects, examples were given by a number of participants of problems encountered in integrating the assistance in the field of vocational training given by various international agencies and bilateral and

multilateral aid programmes. It was suggested that, in many cases, the agencies offering assistance had their own criteria which did not always fit in with the plans prepared at the national level. One participant gave an example of proposals for aid made by one agency which included the condition that far-reaching changes should be made in the established training system in the country. Such far-reaching changes were not considered desirable in this particular case. It had, therefore, been found difficult to accept the aid offer.

Several questions were raised in connection with the time lag which often occurs between the first indication of interest on the part of a government and the start of a project. It was noted that major projects needed a period of between two and a half and four years from the time the first outline of action was drawn up to the arrival of the first expert - an average of two years seven months for projects financed by the Special Fund sector of the United Nations Development Programme had been identified in the past few years. After a short discussion about the reasons why such a long period was necessary, it was concluded that realistic planning for major projects had to be done three to four years in advance to ensure implementation at the right time.

It was emphasised that it was possible in certain circumstances, under the new procedure for requests for aid from the United Nations Development Programme, to start the implementation of a project on a pilot scale under the Technical Assistance sector of the Programme (UNDP/TA) some time before a larger project became operational.

Several participants emphasised the need for comprehensive planning at the national level of all aid requested. Attention was drawn to the possibilities of requesting joint assistance from multilateral and bilateral aid sources, and several examples were given of how such combined multilateral/bilateral aid had been used successfully in a number of countries.

A number of participants gave examples of the importance of forward planning and of a strong national administration for success in projects receiving international or bilateral assistance. This should be taken into account in planning requests for technical co-operation.

With reference to the use of contractors and expatriate personnel as trainers, many participants suggested that it was now becoming current practice in major industrialisation projects to include the training of key personnel among a contractor's obligations. It was noted in this connection that the staff of national training bodies were seldom consulted on such questions; this was regretted since there might be possibilities of close co-operation between the technical staff of the contractors and various training bodies operating at the national level.

In conclusion, it was emphasised and agreed that long-term planning of vocational training and of the administrative machinery needed for the successful implementation of projects was necessary and that such planning should, wherever possible, seek to determine needs on a three to five-year forward planning basis.

Regional Co-operation

The session opened with a brief outline of the activities of the ILO in the Asian region, the functions and work of the regional vocational training adviser and the activities of the ILO in other regions, such as the Inter-American Research and Documentation Centre on Vocational Training (CINTERFOR). The representative of the Colombo Plan then outlined the activities of his organisation in the region in the field of vocational training. He emphasised particularly its work in connection with the development of models and improved forms of training for middle-level technical staff and described the national seminars and colloquia on vocational training planning and on technician training which had been organised in recent years under the Colombo Plan.

He observed that experience in these and related activities seemed to show that the best training abroad was one which was given in conditions similar to those existing in the home country. For this reason, the Colombo Plan had taken action to provide comprehensive information about training facilities available in the region and was promoting a third country programme under which the participating countries would support extra-regional co-operation in the training of skilled workers, instructors and middle-level technical staff. The third country programme was being introduced partly because of the problems the developing countries of the region had encountered in paying for their own trainees abroad or for those they received from other Asian countries. He stated that some language problems had been encountered but several participants mentioned ways in which such problems had been overcome - for instance by attaching an interpreter to a group of trainees (this had been successful) or by arranging for basic language training to be given in the early stages of the fellowship (less successful).

In the course of the discussion a number of participants referred to the successful results which had been achieved when trainees from other countries were included in their own training programmes. It was suggested that, when demand for particular forms of training varied, the places which would otherwise be empty might be filled with fellows from other countries. For this to be possible, early circulation would be required of information on training places available, for instance to the Colombo Plan Bureau.

It was evident from the discussion that many trainees and employers were unaware of the full value and transfer advantages of training within the region. This problem would have to be overcome by giving more information to the trainees and the

employers concerned about the quality of the training which was available in Asian countries.

It was felt that the principal conclusion which the vocational training planner should draw from the discussion was the need for him to make a careful assessment of the capacity available in his country for the training of fellows from other countries, as well as to seek means of overcoming temporary shortages in his own country's training capacity by taking advantage of facilities existing in other parts of the region.

Some participants suggested that the establishment of training facilities might be planned on a subregional basis and referred to the successful operation of several such schemes in South Pacific area.

Several possibilities for joint action in the development of training patterns, standards, trade tests and examination syllabi were discussed in the light of experience with CINTERFOR. While no specific conclusions were reached on this point, it was suggested that the participants in the meeting remain in touch with each other and study possibilities for improved co-operation within the region by informal communication and exchange of information.

ILO Activities

A number of participants asked for detailed information about the capacity of the International Centre for Advanced Technical and Vocational Training at Turin and the possibilities it offered for helping vocational training bodies to overcome problems in providing adequate training for groups of technical staff requiring special attention. It was emphasised that one important function of the Turin Centre was to provide key personnel with advanced training, which was not normally available in their own countries, in fields which required up-to-date equipment of a specialised character and close contact with industry using advanced technology. It was possible for the Centre on request to organise specially-designed courses for groups of fifteen to twenty fellows; types of "mini-project" had been approved under the Special Fund sector of the United Nations Development Programme for such purposes and might also be arranged under trust funds.

Many participants emphasised the problem that such key personnel were seldom singled out in the process of planning vocational training and that this was one of the reasons why only a few requests for such assistance were forthcoming from the vocational training bodies concerned in the various countries. This was a question of project planning rather than of vocational training planning.

Several participants requested additional information about the present position in regard to the Asian Manpower Plan. Some doubt was expressed whether it would be possible to set up regional targets for employment creation and for training and it was suggested

that it was technically impossible for regional targets to be formulated by an aggregation of national plans.

It was emphasised that the essential purpose of ILO efforts in this field was to inspire governments to review their economic policies with a view to ensuring that the utilisation and development of human resources were given equal importance with other factors in economic development. The tasks of the regional team would be primarily to provide support for national authorities concerned with problems of human resource utilisation and development and to supplement national action by such research and other activities as might prove desirable. The regional plan would emerge as a synthesis of the experience and the targets set at the national level. The team would be multi-disciplinary and representative of several agencies including Unesco, FAO and ECAFE.

In the development of this action, vocational training planners would have a particularly important role to play in helping to determine the methods and field of training in which substantial contributions could be made to the development and effective utilisation of the manpower resources of the region.

Appendix III

THE TRAINING OF CIVIL ENGINEERING TECHNICIANS

1. What are the functions of the organisation which the Technician will serve?

The basic function of any Construction Department; whether they construct roads, buildings, water supplies irrigation projects or whatever, are six in number namely:-

(i) Conception.

What is the project required to do?

(ii) Planning.

When? Where? How?

(a) Economic appraisal
(b) Engineering appraisal
(c) Financing

(iii) Design.

(a) Detailed examination of all the factors and production of the optimum design to fulfil the function.

(b) Preparation of detailed plans of what is to be built and detailed estimated costs.

(c) Contract documentation.

(iv) Construction.

By Contract	By Departmental Resources
(a) Calling Tenders	(a) Construction Planning
(b) Appraising Tenders	(b) Mobilisation of Resources:
(c) Awarding Contract	(i) Staff
(d) Organising and providing supervisory staff	(ii) Labour
(e) Contract supervision.	(iii) Materials
	(iv) Equipment
	(v) Money
	(c) Construction Management
	(d) Construction Supervision.

(v) Comissioning. This is the process of setting the completed project in motion. In many cases this may be the responsibility of another Department (e.g. Handing over a new Post Office to the Postal Department). In some cases it is the Construction Department own responsibility (e.g. a new equipment maintenance workshop).

(vi) Maintenance. This is the process of maintaining the completed project (e.g. a road) and safeguarding Government's investment in it.

2. What are the functions of Technician Staff inside this organisation?

There are three basic functions.

(i) Managerial
(ii) Supervisory
(iii) Technical

Some Technicians may have to exercise all three functions, some only two and some only one. Some examples.

(a) Road Maintenance Section Overseer.	All three.
(b) Overseer Supervising Concrete Placement.	Supervisory and Technical.
(c) Draughtsman.	Technical.
(d) Overseer i/c Survey Party.	All three.
(e) Workshop Foreman.	All three.
(f) Laboratory Technician.	Technical.

3. What qualities are required in a Technician to fulfil the function?

(i) A reasonable knowledge of engineering principles with enough mathematics and science to enable him to develop and apply the principles.

(ii) An enquiring mind which does not accept anything without investigation and evidence. The ability to make a fresh approach to established practice.

(iii) Resourcefulness, the ability to make the best use of the men, materials and equipment available.

(iv) Leadership. Readiness to take responsibility.

(v) Practical knowledge of the skills, techniques, materials and equipment which are the inputs to the construction and maintenance processes.

4. What types of training produces these qualities?

(i) Knowledge of Engineering principles, mathematics and science.

(a) Formal secondary education in science stream.
(b) Technical Institute.

(ii) An enquiring mind.

(a) Formal science education particularly experimental work.
(b) Technical Institute.
(c) On-the-job training.
(d) Sandwich courses.

Education for this never ceases and goes on throughout the Technicians career.

(iii) Resourcefulness.

(a) Technical Institute. Field training exercises.
(b) On-the-job training. Activity planning.
(c) Outward bound type training.
(d) Boy Scouts, etc.

(iv) Leadership.

(a) Formal education - Prefect or Class Leader.
(b) Technical Institute - Field Training Exercises Institutional Leadership.
(c) On-the-job - Management of gangs.
(d) Outward bound type training
(e) Boy Scouts
(f) Other group activities

(v) Practical knowledge.

(a) Technical Institute - Manual skills
(b) On-the-job
(c) Sandwich courses - Upgrading and new techniques and materials.

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COLOMBO PLAN BUREAU

NATIONAL SEMINARS AND REGIONAL COLLOQUIA

The Colombo Plan Bureau has held the following National Seminars and Regional Colloquia with the active co-operation of the member governments concerned:

National Seminars

"Approaches to Co-operation between Industries and Institutions in Technical Training"

—Colombo, Ceylon .. February 1965

—Bangkok, Thailand .. October 1965

—Manila, Philippines .. March 1966

—Singapore .. November 1967

—Teheran, Iran .. June 1968

"Manpower Assessment and Educational Planning"

—Colombo, Ceylon .. June 1966

"National Planning of Vocational and Technical Training"

—Lahore, Pakistan .. July 1969

—Tjipajung, Indonesia .. December 1969

—Petaling Jaya, Malaysia .. June 1970

—Seoul, Republic of Korea .. August 1970

—Kathmandu, Nepal .. June 1972

Regional Colloquia

First Colloquium on "Intra-Regional Technician Training"
—New Delhi, India .. April 1965

Second Colloquium on "Intra-Regional Technician Training"
—Bangkok, Thailand .. June 1967

Third Colloquium on "Intra-Regional Technician Training"
—Singapore .. May 1969

Fourth Colloquium on "Intra-Regional Technician Training"
—Manila, Philippines .. March 1971